JPRS 77618

18 March 1981

USSR Report

ECONOMIC AFFAIRS

No. 954

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JPRS 77618

10 March 1981

USSR REPORT

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ECONOMIC POLICY, ORGANIZATION AND MANAGEMENT

COMMODITY-MONEY RELATIONSHIPS ANALYZED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 1, Jan 81 pp 116-118

/Review by Doctor of Economic Sciences Professor V. Lebedev and Doctor of Economic Sciences Professor R. Lokshin of the book "Rol' stoimostnykh form v razvitii sotsialisticheskoy ekonomiki" (The Role of Value Forms in the Development of the Socialist Economy) by D. A. Smoldyrev, Moscow, "Mysl'", 1980, 310 pages/

/Text/ Under the present conditions of the improvement of the mechanism of socialist management the further development of the theory of commodity-money relationships is acquiring great importance. The use of value forms is now aimed at the most complete realizations of the advantages of mature socialism and the potentials of economic growth.

Many debatable questions of the content of commodity relations now remain in economic literature, which complicates the elaboration of specific means of introducing effective cost accounting. In the monograph the course of the theoretical debates is generalized and a step forward is made in the solution of a number of questions of increasing the role of value forms in the mechanism of management. The author's conclusion that under the conditions of socialism we are dealing with a historically fundamentally new content (and accordingly forms) of commodity relations is a basic and, in our opinion, correct one. The main characteristic of these relations is that they express the process of the planned development of socialist collectivity and are displayed on the basis of the directly social socialization of the means of production. Not only the role of the indicated relations, but also their historical place in the process of social progress are revealed in the book.

The substantiation by the author of the reproduction approach to commodity relations merits attention. They are regarded as a diverse subsystem in the unified system of the reproduction of socialist production relations. As a component of the system, commodity relations bear the stamp of its qualitative traits and cannot be understood and expressed without the loss of their qualitative feature--socialist relations outside of and in defiance of this broader system. At the same time the system of socialist production relations cannot be completely comprehended and expressed at the first phase of communism without marketability as their trait.

Commodity relations are analyzed by the author in the unity and at the same time the differences and peculiarities of their expression at the phases of production,

distribution, exchange and consumption. In each sphere of the appearance and use of commodity relations and the value forms objectively inherent in them the author attempts to identify the means of increasing their effectiveness and of using them more actively in the practice of management, planning and the organization of socialist production.

The unity of theoretical analysis with its aim at practice is the most important merit of the monograph in question. In this connection the new approaches in the examination of the essence of value forms (Chapter III, § 3) and their use for the intensification and the increase of the efficiency of social production (Chapter IV, §§ 1 and 2) should especially be indicated.

From the study of political economic problems of commodity-money relationships, the forms of their manifestation (price, profit, credit and others) in the economic ties of production, distribution, circulation and consumption and their influence on the entire process of reproduction D. A. Smoldyrev moves to methodological and organizational problems of national economic planning.

The theoretical problems in the monograph are closely connected with the decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979, in which the increasing role of economic levers and stimuli, prices, trade, contractual relations and others is emphasized.

The theoretical conceptions, according to which commodity-money relationships are opposed to the planned development of the national economy, while the law of value is regarded as alien to socialism, only as a form of accounting and control, which does not affect socialist social relations, are criticized in detail in the work. Therefore, the author writes, it is impossible to do without the value mechanism at the stage of socialism (pp 143, 196).

The insufficient consideration of the effect of the law of value gives rise to such phenomena as the establishment of prices for goods without adequate consideration of their quality, the labor and material expenditures, the correlation of supply and demand. At the same time the automatic payment for goods, which are delivered with the violation of the requirements on quality, leads to the accumulation of goods not having a demand, which is a heavy burden to the economy.

Particular attention in the monograph is devoted to the problem of the proportionality, the balance of supply and demand, and the leading growth of the monetary income of the population as compared with the increase of the output of consumer goods is noted (pp 162-169, 197-207). D. A. Smoldyrev proposes to use more actively value, price levers for the achievement of a balance and the rationalization of the consumption of valuable products. This stand conforms to the spirit and direction of the indicated decree on the improvement of the economic mechanism, which calls for an increase of the effectiveness of economic levers for increasing the efficiency of social production, which implies recognition of the active role of the monetary form of value in the economic process.

When emphasizing the importance of the development of production in the balancing of supply and demand, the complex nature of the solution of this complicated problem should have been distinguished. The general problems of achieving a balance of

supply and demand can be solved in combination with measures on the improvement of wages, the overcoming of wage leveling, its more appreciable differentiation and the worthy encouragement of especially great achievements in labor; on the improvement of prices--wholesale, procurement and retail, their differentiation with the more complete consideration of the quality and consumer properties; on the improvement of the economic ties of trade and production, the affording of perceptible opportunities to consumers to influence the suppliers of goods. The latter is especially effective under the conditions when supply is somewhat ahead of demand.

D. A. Smoldyrev actively supports the point of view that under socialism "the private ownership of the worker of his manpower" exists, while, of course, denying its consideration as a commodity.

However, it is impossible to agree with such an opinion. First, the training of manpower, education, the protection of health and many other processes of vital activity are carried out by means of public expenditures and gained knowledge. In this case manpower cannot act as "relatively economically independent." Second, such manpower functions under the conditions of the public ownership of the means of production, although by hire, by free choice. Third, in economic relations manpower manifests itself not because it belongs to someone, but as a result of its manifestation—the results.

The argument, which was encountered during some periods, that the denial of the effect of the law of value under socialism was caused by the fact that the accepted theoretical model of value relations could not explain many phenomena of economic life, is also debatable (p 236). What kind of model is it, what kind of theory is it, if it not only does not light the way for practice, but cannot even explain "many phenomena of economic life"?

D. A. Smoldyrev asserts that the substantial differences of many thousands of small enterprises (even of one sector) inevitably strengthen the administrative and organizational methods of planning and management to the detriment of economic methods (p 292). But this thesis is not proven in the work. Moreover, the comparison of centralized planning with economic methods is inadmissible.

Scientific planning should rest on the objective effect of economic laws and should actively use economic levers.

It is impossible to agree with the conclusion (p 166) that during the years of the Ninth Five-Year Plan the turnover of goods in days was not sped up significantly in retail trade. The level of stocks declined from 88 days at the beginning of 1971 to 84 days at the beginning of 1976. The tendency for the level of stocks in retail trade to decline also contin ed during the 10th Five-Year Plan. By early 1970 there were already stocks for 76 days of trade. The decline of the level of stocks for a number of goods was an expression of the inadequate balance of supply and demand.

The very intention of the book, which is devoted to the study of the role of value forms in the socialist economy, obliges the author to reveal the essence of money, the monetary form of value and its use in the process of managing socialist production. In the monograph much space is allotted to money and the monetary form of

value, but the author states these questions without resorting of an analysis of the very functions of money in the socialist economy, owing to which the criticism of some assumptions, with which he does not agree, seems insufficiently convincing.

Thus, D. A. Smoldyrev criticize the opinion found in the literature that money in the form of the wage of workers ceases to be money, since it is deprived of two basic functions--a measure of value and a means of circulation (pp 177-178). He shows that distribution according to the quantity and quality of labor under socialism can be carried out most successfully with the use of real money in the political economic sense, consequently, with the functions inherent in it (and not of receipts, work coupons and so forth) and of trade in consumer goods. This stand of the author should be supported. However, without an analysis of the functions of money it is impossible to understand the illegitimacy of this point of view, since manpower under socialism is not a commodity and money in the form of wages is truly deprived of the functions of a measure of value and a means of circulation. However, here money performs a real, but different function--it acts as a means of payment. This function of it stems from the fact that the worker makes an advance to the enterprise at which he works by participating with his labor in the output of a product as a commodity and, consequently, of that part of the value, which turns into the wage. The wage is paid from the monetary receipts of the enterprise for the produced and sold commodity, that is, after money has already performed the functions of a measure of value and a means of circulation. In general money has the property that its performance of individual functions is usually detached both in time and in space, owing to which there arise different elements of the monetary form of value and flows of money, which play a substantial role in the management of the socialist economy. The author of the book, however, was not able to show this properly.

In the book it is admitted that money and trade under socialism are used as components of the mechanism of distribution according to labor. But D. A. Smoldyrev did not answer the question of whether this means the appearance of a new function of money, which did not exist prior to socialism, or whether distribution according to labor is carried out by using the known functions of money.

It should be noted that the engrossment of the author of the book in value forms often involuntarily relaxes his attention toward the study of the use value as a form of economic impact, which now plays a special role.

As a whole the book merits a favorable appraisal. It makes it possible to trace step by step the history of the development of the theory of commodity relations and to evaluate its achievements of late and the new tasks of creative research.

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CSO: 1820

SOCIAL, ECONOMIC GOALS FOR 1981-1990 DISCUSSED BY ECONOMISTS

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 1, Jan 81 pp 59-75

/Article: "Discussion of the Draft Plan of the CPSU Central Committee for the 26th Party Congress 'The Main Directions of USSR Economic and Social Development for 1981-1985 and the Period to 1990' (Round-Table Meeting of the Editorial Boards of the Journals PLANOVOYE KHOZYAYSTVO, VOPROSY EKONOMIKI and SOTSIALISTICHESKIY TRUD)"/

/Text/ Academician of the USSR Academy of Sciences T. S. Khachaturov (editor in chief of the journal VOPROSY EKONOMIKI). The editorial boards of the journals VOPROSY EKONOMIKI, PLANOVOYE KHOZYAYSTVO and SOTSIALISTICHESKIY TRUD jointly with the most active readers have gathered at the meeting in order to discuss the draft plan of the CPSU Central Committee for the 26th party congress "The Main Directions of USSR Economic and Social Development for 1981-1985 and the Period to 1990." The draft plan opens new prospects of development for the Soviet nation and our people. It has features which distinguish it from a similar document published for the 25th congress. These differences consist first of all in the fact that in the past five years the country has moved far ahead and now new gains and tasks are before us. Their specification is also the main content of the draft plan of the CPSU Central Committee. But this draft plan also has differences with respect to methodology.

Let us begin with the fact that it covers not only the regular 11th Five-Year Plan, but also the entire decade up to 1990. This is in keeping with the decree of the CPSU Central Committee and the USSR Council of Ministers, "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality," which specifies a new procedure of compiling long-range plans of economic and social development for 10 and 5 years. The draft of the Main Directions, which is being discussed, covers a 10-year period and the outlook for the 11th Five-Year Plan is elaborated with the necessary detail while the main tasks of development are outlined for the decade as a whole.

Another feature of the draft plan is that the directions of not only the economic, but also the social development of the USSR are examined in it, as is obvious from the very title of this document, while the draft plan for the 26th congress is called the Main Directions of National Economic Development. In conformity with this questions of the comprehensive development of the individual, the increase of the access of the entire population to cultural values, the increase of free time on the basis of the development of services, demography and the strengthening of the family are included in Section II of the draft plan of the CPSU Central

Committee. A number of tasks of social development and the increase of the well-being of the people are contained in Section VIII of the draft plan.

Of the other features of the draft plan it is possible to indicate the great importance which is attached to the development of science and the acceleration of technical progress, which was reflected in Section III of the document. It is a question here both of the introduction of scientific achievements, which are already known and require extensive dissemination, and of fundamentally new tasks of the development of the social and natural sciences, which determine the main path of further scientific and technical development.

The questions of the development of agriculture, like the others, are given in the draft of the Main Directions comprehensively, in connection with the development of the other sectors which are associated with agriculture, and the entire section received the corresponding title--"The Development of the Agro-Industrial Complex."

What is the task of our meeting?

The draft of the Main Directions has been submitted for extensive national discussion. We can make and discuss specific suggestions in elaboration of what has been outlined in this draft plan.

Corresponding Member of the USSR Academy of Sciences Ye. I. Kapustin (Institute of Economics of the USSR Academy of Sciences). The policy of increasing the social and labor activity of the Soviet people is reflected in the draft of the Main Directions. However, the concept "social and labor activity" does not cover all the vital activity of man. Therefore in Section II it would be advisable to supplement the formulation of the highest goal of the economic strategy of the CPSU with the words "the further improvement of the socialist way of life." Moreover, the task "to ensure the further social progress of society, to implement an extensive program of the increase of the well-being of the people" should be made more precise, having added the words "the further development of the socialist way of life," for the social progress of society goes beyond questions of well-being.

The attitude of a person toward his labor, his responsibility for the assigned job, discipline and so forth are the most important conditions of the increase of the efficiency of social production. Therefore, when formulating the main task of the 11th Five-Year Plan it is also necessary to speak about the further development of the socialist way of life, which presumes at the same time an uncompromising struggle against negative phenomena in the life of individual members of society.

I would like to emphasize that in the draft of the Main Directions, where it speaks about the increase of the responsibility of everyone for the assigned job, it is necessary to speak more clearly about the responsibility of engineering and technical personnel for the organization of labor at the works. It is important first of all to establish the material and moral responsibility and interest of engineering and technical personnel in seeing to it that the labor of all workers and employees is used more efficiently. Paragraph 6 of Section II, where it speaks about the increase of the responsibility of economic managers for the results and quality of the work, the fulfillment of the plan assignments and contractual obligations, the observance of the principles of cost accounting, the assurance of the profitability

of production and the acceleration of the turnover rate of the working capital of enterprises, should be supplemented in this connection with the words "for the organization of production and labor."

The need to promote in every possible way the development of socialist competition is stated in the draft. In our opinion, it is expedient in Paragraph 6 of Section II, where it is a question of ensuring "the fundamental coordination of the plan, economic levers and stimuli," to add the words "and socialist competition." Apparently, it is also necessary to make more precise the tasks of the social sciences, having provided for the expansion of research on theoretical and methodological questions of socialist competition.

One of the essential aspects of the socialist way of life is the active particpation of workers in the management of social production. The draft plan calls for the improvement of the organization and the enhancement of the role of socialist competition. It would be correct in principle to emphasize that precisely it should be the most massive and effective form of the participation of workers in the management of social production, and this in the end means the development of socialist democracy.

In speaking about the socialist way of life, the existence of a group of workers who receive the minimum wage should be noted. This affects the satisfaction of needs and their very structure. It is possible to express satisfaction with the fact that the task of increasing the minimum wage, which is connected first of all with the increase of labor productivity, is set in the draft plan. This is extremely important, for the matter consists in the fact that the increase of the monetary wage, including first of all to the workers who receive it in the minimum amount, should be accompanied by a boost in labor productivity and an increase of the material wealth being produced.

L. I. Abalkin (Academy of Social Sciences attached to the CPSU Central Committee). In the process of discussing the draft of the Main Directions the question arises: how do we successfully accomplish what is outlined in them? The factors guaranteeing success can be reduced to two groups: the factors ensuring the quality of the plan itself; the set of organizational and economic measures. Taking into account that the plan will be drafted on the basis of the Main Directions, its individual provisions should be strengthened.

It is necessary to reflect more clearly and fundamentally the requirements of the complete balance of the five-year plan. The economic laws of socialism dictate the need for the complete balance of all the parameters of the plan. Such a balance presumes the creation of reserves. A plan not submitted in a balanced form should not be examined.

It seems that the provision that beginning with the 11th Five-Year Plan the fulfillment of the plan will be appraised by the progressive total on the basis of the assignments stipulated in the five-year plan, should also be set down in the Main Directions.

Decisions which alter the proportions and ratios stipulated by the plan are intolerable during the implementation of the five-year plan. And this should also be recorded in the Main Directions.

As to organizational and economic measures, it is desirable to single out within the five-year plan a section which would include a set of such measures, which ensure the implementation of the plan.

And there is another suggestion: to change the formulations on the organization of competition. The drive only for the qualitative exceeding of the plan is a passed stage of the building of socialism. It is necessary that in all sectors every enterprise would fulfill the plans completely, including the assigments on deliveries of products and the entire set of quality indicators. Such an approach fully satisfies the requirements of the present stage, the fundamental decisions which were adopted (on the new procedure of the adoption of counterplans, the change of indicators, the approval of limits and long-term standards).

M. M. Darbinyan (USSR Gosplan). In the draft of the Main Directions much attention is devoted to meeting the needs of the population. The implementation of a number of comprehensive programs on the most important socio-economic problems is called for, and the food program is called the first among them. It should be elaborated and submitted for approval at the same time as the plan for the 11th Five-Year Plan.

In our opinion, this program should differ fundamentally from the existing plans.

First of all not the gross output of products, which is now an accounting indicator, nor the volume of state purchases, but the level of consumption by the population of food products on a per capita basis for the country as a whole, by republics, oblasts, krays and so on (as it is now being used) should be taken as its main indicator. The named indicator should become a plan indicator for the year, the five-year plan, the future and so on; the work done should be evaluated according to it; the payment of bonuses to workers should be linked with it.

This indicator synthesizes the consumption of products by the population with respect to many sources: through state, cooperative and kolkhoz trade, the commission trade of the consumer cooperative, at the expense of public funds, the private plots of the population, the subsidiary farms of production enterprises and other sources. The planning of this indicator and the stimulation of its growth will increase the interest in all sources of consumption.

In recent years the interest in the receipt of products from state resources has increased and the interest in products from other sources. the private plot, the subsidiary farms of production enterprises, has waned. The products of the private plot have a different proportion in the total resources by republics as well. Thus, in 1978 for meat it ranged from 13 percent in the Estonian SSR to 34 percent in the Kazakh SSR. It is natural that the need to increase the output of products at subsidiary farms and on private plots is indicated in the draft of the Main Directions.

Norms of the rational consumption of food products should become an aim of the food program. For some products they have already been achieved, for others they will be achieved in the next few years, while for still others (for example, fruit) they will be achieved after 1990. In this connection it is necessary to indicate in Section V of the draft of the Main Directions: "The food program should be aimed at meeting the needs of the population at the level of the rates of rational consumption, as well as at the balance of supply and demand at all stages of the implementation of this program."

The program of the development of the production of consumer goods and services also requires elaboration. The subprogram "The Increase of the Production of New Consumer Goods," the elaboration of which is called for by the decree of the CPSU Central Committee and the USSR Council of Ministers, "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality," should become, in our opinion, a component of it. The subprogram should be aimed at the development of a system of measures on the creation, development and assurance of the functioning of the economic mechanism and the material and technical base of the output of new consumer goods in conformity with the steadily increasing needs of the population. According to our estimates, not less than 25-30 billion rubles of these goods should be produced during each five-year plan in order to balance the supply and demand.

It is necessary, in our opinion, to shift the instructions on the output of new goods, which are stipulated in Section IV of the draft of the Main Directions, from the paragraph in which it speaks about cultural, personal and household goods to the paragraph in which it is a matter of consumer goods as a whole. Here it is necessary to note that the elaboration of measures on the stimulation of the output of new goods should be a component of the overall program of the development of the output of consumer goods. A network of special and firm stores for the sale of especially fashionable goods and novelty goods should be set up in order to regulate the sale of new goods.

V. M. Ivanchenko (USSR Gosplan). Section XII "The Improvement of Administration and the Increase of the Level of Management in All the Links of the Economy" occupies a special place in the Main Directions. The tasks of the comprehensive implementation of the measures, which have been prepared by science and practice and are stipulated in the decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979 on the improvement of the economic mechanism, are clearly formulated in it. This set of measures has been supplemented and developed in conformity with the principles formulated by L. I. Brezhnev at the October (1980) CPSU Central Committee Plenum. The system of measures includes: the improvement of the organizational structure of management, the style and methods of work; the tightening up of labor discipline; the practical implementation of the policy of economy; the more complete and active participation of workers in the management of the economy.

In our opinion, for the purposes of the intensification of the comprehensive approach to the improvement of the economic mechanism and its practical introduction in the management of the economy the following additions should be made to the draft of the Main Directions. It is necessary to provide for measures which would ensure the improvement of the organizational structure of the management of the economy during the first years of the five-year plan. The requirement to regard the policy of economy as a style and method of management, which are objectively inherent in the socialist system of management, should also be included in the Main Directions.

The problems of scientific and technical progress are an important element of the Main Directions. Its management is accomplished by means of a system of goal and other comprehensive programs and a system of indicators and assignments. However, we have not achieved the main goal--the organization of scientific and technical progress, which, it seems, consists in managing practically the increase of the technical level of production, and first of all the technology. We have been

limiting the comprehensive goal programs to the development, assimilation and introduction of the first models of new equipment and have been eliminating from the system of programs the stage of reproduction, the saturation of the sectors with advanced equipment and a new production technology. It is a matter of the planned increase of the level of production, which ensures the necessary growth of labor productivity. This requirement must be recorded in the Main Directions and its realization must be ensured.

V. F. Mayyer (Scientific Research Institute of Economics attached to USSR Gosplan). In the draft of the Main Directions it is stated that it is necessary to place the main emphasis in agriculture on the production of grain and fodders. However, at the existing level of the development of production and consumption not only grain and meat are important. Given the assets which are being invested in agriculture, it is possible to ensure in the necessary amounts the production of vegetables, fruit and other agricultural produce.

Specific measures, which will ensure the reduction of manual, especially difficult, labor, should be indicated in the section on working conditions.

The problem of meeting consumer demand is very important. When outlining the means of solving it, it is important, in particular, to emphasize the importance of an active policy in the area of retail prices. When regulating the prices for individual goods it is necessary to keep the average level stable or to reduce it.

V. V. Kosarev (USSR Gosplan). A considerable amount of foodstuffs is not reaching the consumer due to the inadequate development first of all of the food industry, the system of transportation, procurement, trade, the sectorial isolation in planning, including in the distribution of capital investments. In this connection in the draft of the Main Directions it is expedient to indicate the need to specify the proportion of capital investments in their total amount, which is being allocated for the development of the entire agro-industrial complex, and not only the individual sectors belonging to it. As a result the opportunity to use the capital investments more effectively will appear.

In the scientific research on the food program, in our opinion, a changeover from uncoordinated studies, which are conducted within individual sectors, to comprehensive studies, which cover related problems and are aimed at the end results, is required.

It is important to pay for agricultural produce with allowance made for its quality and to make the wages of the workers employed in servicing agricultural enterprises directly dependent on the real revenues of agricultural enterprises.

At operating agro-industrial associations there are no uniform manning table and salaries. The solution of this problem lies in the changeover to the unified management of agro-industrial associations and enterprises through the councils of ministers of the union republics.

V. V. Il'in (USSR Gosplan). In the draft of the Main Directions special attention is devoted to the improvement of the system of economic stimulation of the production of consumer goods. Measures on the increase of the effectiveness of material and moral stimuli in the production of consumer goods are called for.

The Main Statutes on the Formation of Incentive Funds have been drafted for the 11th Five-Year Plan. Much attention in them is directed to the stimulation of the increase of the production volume of consumer goods and the improvement of their quality by the use of such indicators as the proportion of products of the highest quality category and the reduction of the output of products of the second quality category.

It is necessary to increase the responsibility of ministries and enterprises for the output of high quality goods and their delivery to consumers. Therefore the formation of funds and the payment of bonuses during both the 10th and the 11th Five-Year Plans was made dependent on the fulfillment of contractual obligations. Indeed, this system has the drawback that with respect to consumer goods the suppliers bear responsibility for delivery according to a consolidated products list (assortment). During the 11th Five-Year Plan it is necessary to eliminate this situation. The delivery of products for production engineering purposes and consumer goods in conformity with concluded contracts should serve as the main indicator of the evaluation of the activity of the enterprise. Only on such conditions is it possible to ensure compliance with the interests of consumers.

It is also necessary to draft and approve a statute on the head ministry, which is responsible for the output of specific mass demand goods.

In the draft of the Main Directions it should be recorded: "To increase the personal responsibility of the executives of ministries, departments and enterprises for the output of consumer goods."

The evaluation of the activity of ministries, associations and enterprises on carrying out the production of cultural, personal and household goods also requires improvement. It should be based on the total production volume of these goods, including the components, assemblies and parts for their production. The stimulation of the production of children's goods merits more attention. In this connection it is desirable to increase the proportion of the temporary retail price markups for the output of new goods of improved quality, which is allocated for the payment of bonuses to workers.

Ye. A. Odinets (USSR Gosplan). The food program is of extreme importance both economically and socially. In our opinion, it should be based on scientifically sound rates of consumption, on the food allowances for different age groups of the population, which were elaborated by the Institute of Nutrition of the USSR Academy of Medical Sciences, with allowance made for the climatic zones of its settlement.

Fish products account for more than 20 percent of the protein of animal origin in the total balance of the protein consumed in the USSR. The average per capita annual consumption of these products is close to the standard recommended by the Institute of Nutrition of the USSR Academy of Medical Sciences and is 18.2 kg. But their output even exceeds this standard. However, a shortage of fish products is being felt in some economic regions and population centers. This can be explained both by the increase of the size of the population of middle age, for whom the protein of fish is more beneficial than the protein of meat, and by the disappearance of national habits in nutrition. Thus, in the Central Asian and Transcaucasian republics the consumption of fish products until recently was nearly one-fifth to one-third as much as in the Baltic republics.

In our opinion, in the next few years with an overall increase of the consumption of proteins of animal origin the proportion of fish protein in the food balance will be retained, and in some regions will increase. The proportion of live, chilled and cut frozen fish, fish cuisine and prepared fish (instead of canned fish) will gradually increase in the structure of fish products.

At present pond, lake and other fisheries (including agricultural fisheries) supply about 190,000 tons of fish--carp, /amur/, silver carp, peled (whitefish--Coregonus) and trout. The need to increase the productivity of inland bodies of water and to develop commercial fish breeding at an increasing pace is discussed in the draft of the Main Directions. But, when catching fish in a river or lake, until recently we only "gathered the crop," but now it is necessary to both "sow" and cultivate the future "crop," consuming 4.5-5 kg of mixed fodders per kilogram of commercial fish.

The national economy has to spend considerable capital in order to offset the losses of biological resources in rivers, lakes and reservoirs, which have been caused by water pollution, the change in the hydrologic cycle in connection with the irrevocable consumption of water and other reasons. However, a number of ministries and departments underestimate the importance of the building of fish breeding facilities which in conformity with the approved plans of the construction of industrial enterprises, hydraulic and other structures should be built to make up for the harm done to fish stocks. The construction of such facilities is often carried out last of all or is postponed for an indefinite period, while the main facilities harming the biological resources are already beginning operation, and as a result the harm is increasing.

Therefore, in our opinion, an addition should be made to Section IX "The Protection of Nature" of the draft of the Main Directions: "The general client of the construction of industrial enterprises, power centers, water management systems and structures, the building of which may harm the biological resources of inland seas, rivers, lakes and reservoirs, are to ensure at the same time as the indicated construction the building of facilities which offset this harm."

Academician of the All-Union Academy of Agricultural Sciences imeni V. I. Lenin V. A. Tikhonov. In agriculture, in spite of the increase of the material and technical base of production, the size of the regular labor force has practically not decreased. The main reason for this is the unsatisfactory structure of the material and technical base of agriculture in general and the equipment being used and supplied to it, in particular. In essence, industry up to now has been supplying farming with individual agricultural machines, but not systems of them. Therefore the complete mechanization of technological processes has not been carried out in full.

The material base of the "postagriculture" production stages--primary processing, storage, transportation and processing of the produced output--is especially backward. In this connection the demands on industry concerning the changeover from the production of individual machines to the output of integrated technical and technological systems, which encompass both the production and the processing of agricultural produce, should be reflected in the draft of the Main Directions.

It is necessary to activate the formation of special zones for the production of commercial products, on the basis of the task of bringing the production of each of

them closer to the regions with the most favorable natural conditions for this. In order to fully utilize the biological potential of regions, their specialization must be intensified more actively at the same time as the creation of a developed production and social infrastructure and the expansion of the interregional exchange in products of the main specialization. Apparently, only on such a basis is it possible to achieve an increase of the production of high protein fodder cereal and leguminous crops and to solve the problem of the acute shortage of fodders.

Another urgent problem is the management of integrated multisectorial agro-industrial production. Such production is being formed and really exists, which is attested by the strengthening and expanding production economics contacts among its sectors.

The assignment on the development and adoption during the 11th Five-Year Plan of a well-balanced system of the management of agro-industrial production at all levels, starting with the rayon and including the oblast, kray, autonomous and union republic and ending with the national economy as a whole, should be formulated. Without such a system it will not be possible in the next few years to overcome the formed departmental exclusiveness and the predominance of sectorial economic interests and sectorial intermediate goals.

Changes, in our opinion, must also be made in the distribution of capital investments. It is necessary to allocate them for the agro-industrial complex as a whole, having granted to its management organs the right to distribute and allocate them to the most important spheres of activity.

The stimulating mechanism in agriculture requires improvement. During the 11th Five-Year Plan the real level of production will become the criterion of economic stimulation. The purchase of products produced in excess of the achieved level will be substantially encouraged. But this system is not free of negative aspects which are caused by the duality of prices. In particular, enterprises which have exhausted their resources are under relatively worse conditions. It is also not ruled out that with time this system may give rise to a tendency for the growth rate of production to slow down. Therefore it should obviously be regarded as a temporary system. But even as such it should be supplemented by the effective material stimulation of the workers. The job contract plus bonus wage with the periodic advancing of funds has shown itself to be good at the level of primary labor collectives. Its advantage is that neither the volume of performed operations nor the time worked, but the volume of output really produced serves as the criterion of the personal incomes of workers.

Such a system of pay for the labor materialized in the product should hold a dominant position in agricultural production. This should be reflected in the draft of the Main Directions. The indicated principle of pay should be extended to all levels of production: sovkhozes, kolkhozes, interfarm enterprises and associations. For the managers of all levels and for specialists it seems rational to adopt a system of supplementary payments for the end results. It is also expedient for the material incentive fund of economic managers and specialists to be formed according to the standard of deductions from the net product produced during the year and to be distributed accordingly among them. Therefore the assignment on the development and experimental checking of the most advanced and effectively operating systems of economic stimulation should be formulated in the draft of the Main Directions.

N. P. Shcheblykin (USSR Gosplan). An increase of the production of grain in our country and the boost of its average annual volume during the 11th Five-Year Plan to 238-243 million tons are called for in the draft of the Main Directions. The question of producing grain for food purposes was solved long ago. Now it is a matter of the better processing of grain, the increase of the quality of the flour being produced and on this basis of bakery, confectionary and other goods.

An increase of the output of flour of the highest quality by approximately 24-27 percent is envisaged for the 11th Five-Year Plan. The necessary conditions for this have been created in the country; the retooling of the milling industry is being carried out on the basis of complete sets of highly productive milling equipment, which has been assimilated by the machine builders.

Therefore the task of increasing the production of grain in the country is connected mainly with the intensification of animal husbandry. Approximately 120 million tons of grain are being consumed for the fattening of livestock. It is expedient to use this grain in a balanced form, that is, enriched with the necessary amount of protein additives, antibiotics, vitamins, trace elements and other biologically active ingredients.

The work practice of livestock farms has shown that with the consumption of grain which has been converted into mixed fodders the outlays to obtain 1 quintal of pork decrease from 8.5 to 4.5 quintals, while the fattening time is shortened by 25 percent. A similar situation is observed when obtaining beef and poultry meat.

The accelerated development of the mixed fodder industry and the sectors producing protein additives, amino acids, vitamins and other biologically active ingredients is called for in the draft of the Main Directions. However, with the fulfillment of the outlined assignments in 1985 in practice only half of grain going to feed livestock and poultry can be converted into mixed fodders; the remaining grain will be used without enrichment and, hence, not efficiently enough. In this connection, in our opinion, it would be advisable in the draft of the Main Directions to provide for a faster rate of development of the sectors producing protein additives, premixes, amino acids, vitamins, enzyme compounds, antibiotics, trace elements and other biologically active ingredients for the purpose of ensuring in the next few years the use of all the grain being allocated for the feeding of livestock in the form of mixed fodders and in a balanced form.

V. P. Mozhin (director of the Central Scientific Research Institute of Economics attached to RSFSR Gosplan). The reflection in the draft of the Main Directions of a section devoted to the agro-industrial complex is quite valid. However, the processing of agricultural raw materials, which are used for the production not only of foodstuffs, but also of consumer goods, should be included in the agro-industrial complex.

The Main Directions call for the drafting of the food program up to 1985-1990. It is expedient when compiling it to provide for urgent measures of an economic organizational nature. In the food program this question should be placed in the forefront.

It is necessary to increase the responsibility of local state organs for the supply of the population with foodstuffs and to provide them with the appropriate rights.

The need for the better utilization of agricultural raw materials should be emphasized in the Main Directions. This involves the improvement of the management of agro-industrial complexes and the elimination of interdepartmental isolation.

G. I. Shmelev (Institute of Economics of the World Socialist System of the USSR Academy of Sciences). The solution of the food problem is especially urgent. The further formation of the socialist way of life requires this.

The aggravation of the food problem, which has occurred in spite of the increase of agricultural production and consumption, is connected with the considerable increase of the effective demand of the population for high value foodstuffs. Therefore the utilization of all the potentials of the increase of agricultural production, particularly the development of the private subsidiary sector, is of great importance. This task found extensive reflection in the draft of the Main Directions. But it is necessary to speak not only about the need for the development of private plots and kolkhoz trade, but also about their new organizational forms, the modernization of production on private plots and the development of integrational contacts between them and the public sector on the basis of contracts.

In the draft plan the production of means of small-scale mechanization for private plots is placed on the same level as the production of household equipment. But the entry about the former of the indicated types of production should be placed where agricultural machine building is discussed, since it is a matter of the output of necessary equipment for a very important sphere of the agrarian sector of the national economy.

I. F. Suslov (Moscow Institute of the National Economi imeni G. V. Plekhanov). The solution of the food problem in many ways depends on the state of production at kolkhozes and sovkhozes. The efficient operation of agrarian enterprises and their components can be ensured only on the basis of the utmost strengthening and development of the cost accounting mechanism. At the same time, as the practice of economically developed farms shows, it should include brigade cost accounting.

It would be advisable to supplement the corresponding clause of the draft of the Main Directions with the words "to adopt brigade cost accounting more extensively and to increase its effectiveness."

The strengthening of cost accounting at farms not only does not hinder the shifting and centralization of resources within the association, but, on the contrary, expedites and stimulates these processes. It objectively necessitates detailed estimates of the expenditures and the choice on this basis of the most effective means of solving the food problem.

The most effective principles of cost accounting with allowance made for the specific nature of the levels and the peculiarities of the forms of property should be elaborated and approved for each level of management.

The attempt to carry over the cost accounting principles characteristic of farms to the level of the association and the principles of brigade cost accounting to the level of farms did not produce useful results.

Corresponding Member of the USSR Academy of Sciences S. S. Shatalin. The draft of the Main Directions contains only one indicator of the efficiency of social production--labor production. In this case the impression is created that 85-90 percent of the increase of the national income during the 11th Five-Year Plan will be obtained by means of the increase of labor productivity alone, although in reality it is the result of the influence of all intensive factors on the rate of economic growth. It is necessary to show what the dynamics of the materials-output ratio and the output-capital ratio for the national economy is.

In the further work on the draft plan it is expedient to set the goal of the stabilization, and then the increase of the proportion of nonproduction capital investments in their total amount. In recent times this proportion has decreased. The increase of capital investments in the nonproductive sphere (health, education, culture, housing construction) is one of the main factors of the increase of the efficiency of the use of production resources and, consequently, of social production as a whole.

It is expedient to draft a special goal program on the assurance of the balance of supply and demand as the most important condition of the assurance of the steady increase of the national well-being. The food program should be an integral part of it.

The improvement of the system of retirement security is discussed in the Main Directions. It is desirable to supplement it with the creation of a mechanism for adjusting pensions with allowance made for the indices of the growth of the real income of the population and the level of retail prices for consumer goods and services.

And, finally, it seems advisable to note in the Main Directions the need to increase the wages of the workers of the nonproductive sphere of the national economy, the average level of which for the present lags behind the level of wages of those employed in the production sphere.

Yu. V. Borozdin (Deputy Chairman of the USSR State Committee for Prices). The transformation of prices into an effective planning standard of expenditures so that prices would not simply follow the actually changing production costs, but would be a kind of planning criterion of the socially necessary level of these expenditures, remains one of the most urgent problems of the 11th Five-Year Plan. Only in this case is it possible to bring about the active use of the price mechanism in the reduction of the production cost, which is now a serious problem for the entire national economy.

In this connection in Section XII of the draft of the Main Directions it is expedient to state the paragraph on pricing in the following wording: "To improve pricing in the sectors of the national economy as an important tool of economic management. To transform prices into an effective planning standard of the socially necessary production outlays. To increase the stimulating influence of wholesale prices on the improvement of the quality of items, the acceleration of the assimilation of new, highly efficient equipment and the replacement of obsolete equipment, the more efficient and economical use of production resources and the reduction of the production cost. To tighten up state price discipline."

A. V. Orlov (director of the All-Union Scientific Research Institute for the Study of Consumer Demand and Marketing Conditions). In order to increase the influence of trade on the enterprises producing consumer goods, it is expedient to introduce the indicator "the degree of satisfaction of the demand and needs of the population" along with the indicator of the volume or the growth rate of retail goods. The work of the enterprises producing consumer goods should be evaluated according to the indicator of the degree of satisfaction of the demands contained in the orders of trade for resources, which would attest to what extent the planned production volumes are meeting the demand of trade for goods.

In Section VIII of the draft of the Main Directions "Social Development and the Increase of the National Well-Being" the clause on the increase of the degree of balance of supply and demand on the domestic market of the country should be formulated more clearly.

In the Main Directions great importance is attached to the increase of the output of consumer goods. But more precise wording is probably also needed here. In our opinion, it should be noted: "For the purpose of finding reserves for increasing the output of consumer goods, improving their assortment and quality and meeting the need of the national economy and the population for them to increase the responsibility of the head ministries, to improve coordination and specialization in the production of consumer goods."

A clause on the need to improve the study of demand is recorded in the Main Directions. It would be more correct to word it as follows: "To improve the work on the study of demand in trade and industry, to develop a uniform system for the comprehensive study and forecasting of demand."

E. P. Gorbunov (Institute of Economics of the USSR Academy of Sciences). It is necessary to revise the traditional methods of planning of the consumer sphere so as to carry it out with allowance made for the sociodemographic structure of the population. This concerns the planning both of the output of individual types of products and of prices, rates, material stimulation, social security and so on. It seems that under the conditions of the changeover to balanced economic development the consumption fund, which is calculated according to socio-economic standards, could serve as the objective basis of the formation of the entire structure of social production.

A scientifically sound size of the consumption fund, which is defined as the sum of the effective demand of the population and the amount of the public consumption funds, makes it possible on the basis of progressive standards to establish the amount of the accumulation fund, which is necessary for their production, and its total size, the amount of the national income, the gross national product and so on. Therefore it seems that in the section of the draft of the Main Directions on the economic mechanism it is necessary to indicate the main ways of implementing the measures which ensure balanced economic development.

P. S. Osipenkov (Scientific Research Institute of the Academy of Social Sciences attached to the CPSU Central Committee). During the changeover to intensive methods of management proper attention should be devoted to the acceleration of the process of the socialization of the infrastructure for the purpose of the relative decrease

of its cost and the creation of the conditions for the better performance of the functions characteristic of it.

It is possible to overcome many difficulties in the development of the infrastructure by enhancing the role of territorial administrative organs. If the material and financial resources which are allocated for the development of the infrastructure, which is of a territorial, intersectorial nature, are turned over to the direct control of these organs, opportunities to expedite the process of its socialization and the relative decrease of its cost will arise for them. At the same time such a procedure would improve the cooperation of sectorial and territorial administrative organs. In this case the better use of the objects of the production infrastructure would be stimulated by means of the more and more extensive and complete use of cost accounting methods in territorial administration. In connection with what has been said it seems expedient to supplement the draft of the Main Directions with the thesis that the management of the development of the infrastructure for the purposes of expediting its socialization should gradually be turned over to territorial organs.

The social infrastructure is the sphere of consumption. We consider it necessary to raise the question of enhancing the stimulating role of the distribution of the good things of life, which are supplied by this sphere. The distribution and consumption of the good things of life should be subordinate first of all to the interests of production and should be used as a stimulus of the increase of the efficiency of management. In our opinion, the distribution of the aggregate fund of nonproductive accumulation among administrative economic regions should be made dependent to a certain extent on the results of the economic activity in oblasts, cities and rayons.

However, the sectorial management of the social infrastructure does not make it possible to create a territorial system of economic stimulation and deprives local organs of opportunities to ensure the comprehensive economic and social development of the subordinate territory. Therefore the role of territorial administrative organs and at the same time the stimulating influence of the social infrastructure on the increase of production efficiency should be increased. Hence it follows that it is expedient to supplement the draft plan with the following entry: "To implement a set of measures on the improvement of the mechanism of the territorial management of the development of the social infrastructure, on the increase of its influence on the efficiency of social production."

Corresponding Member of the USSR Academy of Sciences L. M. Gatovskiy. Special attention is devoted in the draft of the Main Directions to the acceleration of scientific and technical progress and the increase of its efficiency. One of the conditions of the solution of this problem is the overcoming of the temporary worsening of the economic indicators of the activity of associations and enterprises in the process of assimilating and introducing new equipment, in spite of the economic impact incorporated in it for the entire service life. For this there is needed: full compensation of the enterprises and associations which are assimilating and introducing new, efficient equipment for the temporary increase of production costs; the establishment for this period of plan assignments on the production volumes and labor productivity, standards of the labor-output, materials-output and capital-output ratio in conformity with the real potentials created in the process

of assimilating and introducing new equipment in production; the reimbursement of the losses in the economic stimulation funds, which arise during this period not through the fault of the enterprises and associations. Annual standards of expenditures and terms of assimilation must be elaborated for each technical item (technological process).

The neutralization of the temporary adverse influence of the processes of assimilating new equipment on the economic indicators and a differential approach to the evaluations of the operation of the enterprises (associations), which are assimilating and introducing this equipment in production, and to the plan assignments being set for them are quite practicable, for they are based on the redistribution of the impact obtained as a result of scientific and technical progress. The enterprises and associations, which are assimilating and introduction new equipment, when the impact and economic indicators achieved owing to this are still too low, should receive capital through the Unified Fund for the Development of Science and Technology (YeFRNT) by means of deductions from the profit which the operation of previously assimilated equipment yields. The new equipment, having already been assimilated, as if "returns" the assets, which were deducted for the YeFRNT and were obtained for the reimbursement of the costs for its assimilation. This economic mechanism is essentially of a credit nature and requires the improvement of the procedure of forming and using the assets of the YeFRNT. Here it is expedient to use bank credit more extensively.

Since the assimilation of new equipment is usually accompanied by additional difficulties, it is necessary not only to eliminate the unprofitability of this measure, but also to create advantages for those enterprises and associations at which it is implemented. This requires considerable enhancement of the role of the markup for quality on the wholesale price for equipment and additional material incentives for the collective and workers, who assimilate and introduce new equipment (by means of the obtained impact and the redistribution of the assets of the material incentive funds).

The increase of the interest of enterprises and associations in the output of new equipment should be combined with the increase of its efficiency. In our opinion, a gradual shift should be made to such a procedure, in case of which the equipment being newly produced can be considered new only if it meets the requirements of the highest quality category, that is, with respect to the technical and economic indicators it is superior to the best analogs or corresponds to them.

In connection with what has been said in Section XII of the draft of the Main Directions it is necessary to formulate a clause on the expedience of compensating associations and enterprises for the necessary expenditures on the assimilation of new equipment and the granting of certain advantages to them.

M. A. Vilenskiy (Institute of Economics of the USSR Academy of Sciences). So far technical progress has taken place in breadth, including new works and types of labor. This is a natural process, and it will continue. With the completion of overall mechanization the extensive means of technical progress will end and the transition to a higher level of it, which requires the replacement of existing machines with fundamentally new ones, should be accomplished. Only such replacement will ensure the accelerated increase of labor productivity. This is the intensive

means of the development of technical progress. Whereas at the stage of extensive development the replacement of manual labor by machines was carried out, in the case of intensive development machines are replaced by machines. In this connection it is proposed to record in the draft of the Main Directions: "To concentrate the efforts of basic and applied scientific research institutes on the development of fundamentally new equipment which is based on those technological principles that make it possible to change radically the technological processes of processing in the direction of a decrease of: operations (inefficient technology), the parts which make up finished items, manual labor, the materials-output ratio and the power-output ratio."

In the draft of the Main Directions much attention is devoted to the better use of material resources. However, it is impossible to limit ourselves only to the overcoming of the impractical attitude toward the use of resources. For the main cause of the low utilization ratio of raw materials, materials and fuel is the imperfection of the technology of their processing. This is especially evident from the example of power engineering. At present approximately 310-320 g of conventional fuel are consumed for the generation of 1 kWh of power, while the energy value of 1 kWh is equivalent to only 123 g of conventional fuel, that is, nearly 200 g are being lost. The main cause of these losses is the fact that the current technology of burning fuel does not make it possible to make good use of more than 40 percent of its energy. Consequently, it is necessary to set for the basic sciences the task of developing fundamentally new technological processes of the use of material resources, fuel and power.

In the draft of the Main Directions much attention is devoted to social problems which it is planned to solve during the 11th Five-Year Plan, and for the first time it is shown that social factors actively influence the growth of the economy. In Section VIII it is noted that "the effective use of social factors of the growth of the economy" should be envisaged during the 11 Five-Year Plan. This extremely important clause shows that a very close interrelationship exists between economic growth and the achievement of social results. However, it is possible to solve the question of the effective use of social factors of the growth of the economy only by having the appropriate methods of calculation, but so far they do not exist. Therefore it is desirable to add to the indicated clause the words: "To elaborate indicators of the evaluation of the influence of social factors on the growth of the economy and methods of their use."

L. L. Zusman. For a scientifically sound evaluation of the natural resources which can be included in the amount of the calculated national wealth of the country, it is necessary to elaborate methods of estimating farming lands and other used natural resources and the wealth of the nonproduction infrastructure on the basis of the Marxist theory of labor value. At present there is a great disparity in these estimates.

This question is also closely connected with the determination of the economic effectiveness of capital investments, since the land areas taken up by industrial construction should be taken into account in the capital investments according to a specific estimate. The same thing also pertains to other natural resources used which are not reproducible and are partially reproducible. Therefore in Section III of the draft of the Main Directions, where the concentration of efforts in the area

of the social sciences is indicated, to the second paragraph, after the words "the expansion of the studies of... the increase of the efficiency of social production" it should be added: and "national wealth," while in Section IX in the last paragraph, where it is a matter of the elaboration of cadasters of natural resources, it should be indicated: "and their national economic value estimation with a breakdown by regions and for the USSR as a whole."

In Section V it is necessary to emphasize the priority of the construction of warehouses, storehouses, elevators and other facilities, the improvement of roads and the fitting out of means of transportation for assuring the keeping capacity of transported and stored products. In Section VIII it is necessary to insert in the paragraph, in which the strengthening of the material and technical base of trade is discussed, an indication of the expansion of the construction of warehouses and storehouses, which ensure the safekeeping of agricultural products.

A. A. Beschinskiy (Commission for the Forecasting of Power Resources of the USSR Academy of Sciences). Power engineering is of decisive importance for the increase of the productivity of national labor. The increase of power consumption and the improvement of the structure of power carriers are playing a most important role in the technological improvement of production.

At the same time the capital-output ratio of power engineering is several times greater than the average for industry. About one-third of the industrial capital investments and approximately 15 percent of all the capital investments in the national economy are being allocated for the development of the fuel and power complex. It is necessary to solve a two in one problem: on the one hand, to increase the power resources and, on the other, to pursue a power-conserving policy, the utmost saving of power. Therefore it is proposed to insert in the draft of the Main Directions the following thesis: "To organize the planned management of power consumption, meaning the achievement of its rational pattern, the adoption of power-saving technology, the development of an efficient structure of the ultimate power carriers while meeting all the requirements of technical progress and the increase of labor productivity. To introduce in the practice of planning and statistical reporting the indicator of the setting of standards of the consumption of the end energy."

S. S. Shnitser (All-Union Scientific Research Institute of the Meat Industry). In the draft of the Main Directions it is expedient, in our opinion, to note the need:

for an increase of the effectiveness of the operation of information organs, the extensive discussion of individual economic problems;

along with the increase of the output of foodstuffs to try to achieve their efficient use, the elimination of losses, the more thorough and complete processing of raw materials.

Moreover, it is desirable for questions of the solution of the food problem and the development of the food industry and the entire agro-industrial complex to be covered more extensively on the pages of economic journals.

A. P. Bulkin (NIIEinformenergomash). The further elaboration of the problem of using engineering and technical personnel and increasing the efficiency of their

labor is necessary. Along with cost accounting methods of stimulation according to the end results the improvement of the forms of payment for engineering and technical labor within the framework of wages is playing an important role. The problem consists in ensuring in each specific case a direct dependence of the level of wages of engineering and technical personnel on the level of their skills and labor contribution. In this connection in the draft of the Main Directions it is desirable to especially emphasize the urgency of increasing the results of the labor of engineering and technical personnel, using for this the means incorporated in the wage system, and not only the system of stimulation funds.

It is also expedient to stress the ever increasing role of the standardization and classification both of the main equipment and the primary product and of the consumer goods produced by machine building enterprises. In a number of cases a broad list of auxiliary assemblies and units with identical or similar parameters is unjustified. Thus, ZAZ, Moskvich, Zhiguli and Volga motor vehicles have different types of batteries, control instruments and so forth. Vehicles of the same class have different types of wheels. The same thing can also be said about heavy trucks, which are being newly designed and are being used in the national economy. This complicates the repair and operation of equipment and decreases the level of specialization at plants of mass and series production.

As to consumer goods, when distributing these products among enterprises of basic production the technical equipment of the latter should be taken into account. The enterprises having unique equipment, the operation of which requires great outlays, should be used for the production of durable goods of greater complexity so as to ensure the profitability of production.

Ye. G. Panchenko (Kiev Higher Party School). The organizational structure of territorial administration in our country was formed long ago and at present does not conform to the tasks of ensuring the comprehensive development of territories. At the same time great potentials for increasing production efficiency are incorporated in territorial administration.

It is necessary to link the results of management with the efficiency of the operation of territorial organs. As is known, the local budget receives allocations in case of the overfulfillment by enterprises of the plans on the production of consumer goods and others. In order to broaden and extend this relationship, it is important to measure production efficiency with a breakdown not only by sectors, but also by territories.

In this connection in the last part of the draft of the Main Directions it is expedient to insert the following addition: "To improve the mechanism of territorial administration in the interests of the use of the available potentials for increasing production efficiency and creating on this basis the most favorable conditions for the labor, daily life and relaxation of the population."

Ye. F. Manevich (Institute of Economics of the USSR Academy of Sciences). The decline of the birth rate, which has been occurring in our country over the past 20 years, is adversely affecting the demographic situation. Therefore it seems expedient to insert in Section II of the draft of the Main Directions the words: "To implement a set of measures on increasing the birth rate and life expectancy, for

which during the next decade (1981-1990) to enlarge the system of state grants to families having two or more children, with allowance made for the established income, the level of wages and the standard of living."

In connection with the granting beginning in 1981 to working women of partially paid leave to care for a child until he reaches the age of one year, it is proposed to supplement Section VIII of the draft plan with the following provision: "To take into account the time spent on raising children when calculating the total length of service for obtaining a pension owing to age." In the same section after the words: "To provide for the further development of the network of kindergartens and nurseries" it is proposed to add: "To reduce the workload per teacher and per nurse. To expand the training of teachers at higher educational institutions and schools."

For the purposes of protecting the health and increasing the life expectancy of the population it would be desirable to supplement the indicated section of the draft plan with the following entries which stipulate the need:

to develop extensively the network of dispensaries at enterprises, to introduce a complete dispensary system for men over the age of 40 and for all working men and women employed in difficult and hazardous jobs;

to meet completely the need of the population for medicines;

to improve the supply of all medical institutions with modern treatment and diagnostic equipment, having increased the imports in those instances when the domestic medical industry cannot meet this need;

to conduct on a broad scale a campaign against alcoholism with the use of all the mass media.

The efficient use of the available manpower resources, first of all owing to the introduction of new equipment and technology and the improvement of the organization of production and labor, is acquiring enormous importance. Therefore in Paragraph 3 (after the fourth paragraph) of Section II of the draft plan of the CPSU Central Committee it is proposed to make the following insertion:

"In 1981-1990 the gradual release of manpower owing to the increase of technical equipment, the radical improvement of the location and specialization of production, the increase of its smoothness, the maximum reduction of the losses of working time and the thorough and comprehensive interest of both the collectives of workers and each worker, should become the main means of providing the national economy with personnel. For the purpose of decreasing the interest of enterprises in keeping extra workers it is necessary to create favorable conditions for the extensive dissemination in all the sectors of the national economy of the Shchekino method and the brigade contract."

Paragraph 3 of Section II (on the creation of the conditions for providing personnel to enterprises being newly put into operation, especially in the regions of Siberia and the Far East) should be supplemented with the clause: "To establish regional wage coefficients and the amounts of public consumption funds at a level that would completely offset the increase of the higher expenditures on food, the purchase of clothing and footwear and heating."

The second paragraph of Paragraph 4 of Section II should be supplemented with the following words: "and on this basis to release a certain portion of the workers for their use in other sections of production and in other sectors of the national economy."

D. N. Karpukhin (Scientific Research Institute of Labor). The question of increasing the growth rate of labor productivity as compared with the rate achieved during the 10th Five-Year Plan is very important. In order to solve it, it is necessary to provide for specific measures in the area of the increase of the technical level, the scientific organization of labor, norm setting, material stimulation and so on.

The problem of the use of the regular labor force in the national economy and its distribution is closely connected with it. It is expedient to eliminate the unsubstantiated diversion of workers and employees from their main production activity; to tightening up state control over the use of the regular labor force in all sectors of the national economy; to establish effective penalties for the violation of the limits of the number of workers and employees, for large losses of working time, for the turnover of personnel and for a high proportion of manual labor.

The clause of the Main Directions, which concerns the improvement of working conditions, requires specification. It is necessary to continue the policy of effecting socio-economic transformations in labor, which are aimed at the increase of its efficiency, the enrichment of the content, the improvement of the conditions and the gradual achievement of the social homogeneity of labor. The drafting and implementation of goal programs in the area of labor should ensure a decrease of the number of workplaces, which require unskilled manual, hard physical labor, as well as labor with monotonous and unappealing functions. It would be advisable to note in Section II: "To provide opportunities for the gradual creative growth of workers. To cultivate in labor collectives, brigades and links intolerance of violators of production and labor discipline."

G. G. Semin (State Committee for Labor and Social Problems). As many years of practice have shown, the further dissemination of the experience of the Shchekino Chemical Combine and its followers in improving the organization of labor, material stimulation and planning is one of the reserves for the increase of labor productivity and the provision of skilled personnel to new enterprises and works. In the draft of the Main Directions it is noted: "To implement measures on the further expansion and the increase of the effectiveness of the brigade form of the organization of labor and wages." In the brigade form of the organization of labor and wages the motto, under which the Shchekino method is implemented: "More Output, Fewer Personnel," is realized to the greatest extent. The combining of occupations and functions and interchangeabili. are used extensively in the brigades. The amount of the total wage of the workers of the brigade, who are paid according to the end result, does not depend on the number of workers fulfilling the assignments: the smaller the number by which they fulfill the set assignment, the greater the amount of pay of each of them.

V. N. Zarubin (All-Union Scientific Research and Planning Institute of Labor in Construction). The most important indicator of the efficiency of the construction industry is the increase of labor productivity. Today each percent increase of it is achieved by more capital-consuming decisions than at the earlier stages of the industrialization of construction.

The changes that have occurred are being taken too little into account when evaluating the results of the work of construction organizations.

Taking into account the exceptional importance and interdependence of the problems of the intensification of construction in the acceleration of labor productivity, it would be advisable in the section of the draft of the Main Directions on capital construction, where it is stated that labor productivity should increase by 15-17 percent, to add: "with the minimum expenditures of public resources."

Yu. P. Kokin (Scientific Research Institute of Labor). In the section of the Main Directions, which is devoted to social development and the increase of the national well-being, it is planned to increase the minimum wages of workers and employees in the production sectors of the national economy and to use more extensively the reserves for the increase of labor productivity.

Given the achieved level of the average wage attention should be directed not toward its general increase, but toward the increase of the salaries and rates for those categories of workers, for whom this is extremely necessary. The increase of the level of wages should promote not only the solution of social problems, but also an increase of the efficiency of work and of the contribution of workers to its overall results.

During the coming period it is important not only to ensure an increase of the wage rates with allowance made for the increase of skills and the complexity of the jobs being performed, but also to set up the mechanism for introducing new working conditions so that it would be connected with the increase of the efficiency of social production. In the draft of the Main Directions it is necessary to stipulate more precise measures in this area: the increase of the proportion of the assets being spent on the improvement of working conditions; the saving of wages; the improvement of the organization of labor.

A. A. Prigarin (director of the Center of the Scientific Organization of Labor of the Radio Engineering Industry). In recent years in our sector it has been possible to develop and adopt at enterprises a system of the comprehensive evaluation of the activity of subdivisions and workers, which is based on the fact that each subdivision and specialist are paid bonuses precisely for those indicators, for which they bear responsibility in conformity with their functional duties. Where this system has been adopted, the amounts of the bonuses range among the individual structural subdivisions from 17-20 percent to 50 percent. But now, when the desired results have as if been achieved, it is evident that the achieved difference in the wage of the best and the worst workers is inadequate.

A situation is being created, in which the maximum bonuses are paid only for the fulfillment of the main fund-forming indicators and incentives for other indicators of production efficiency are not being used. This hinders the strengthening of the interest in increasing production efficiency. Apparently, it is expedient to examine the question of the correlation of the fixed and variable portions of the wage of engineering and technical personnel, since today its variable portion is clearly inadequate. In this connection it is proposed to include in the Main Directions the clause: "To increase the responsibility and material interest of managers and specialists in increasing production efficiency."

It is also necessary to speak about the personnel situation. It is impossible to increase the output-capital ratio when there is a shortage of personnel. It is necessary to create a mechanism of the planning and control of the number of workplaces. For at present it is difficult to say how many workplaces there are in the country. It is a difficult task to count them, since in some types of production the workplaces are determined according to the units of equipment, while in others they are determined according to the standards of the labor-output ratio from the set amount of work and so on. Having solved this methodological question, it is possible to include the indicator of the number of workplaces in statistical reporting. Moreover, standard correlations between the number of workplaces and the number of workers to attend them should be elaborated. Therefore in the draft of the Main Directions after the words "to take steps toward ensuring the balance of workplaces with manpower resources" it is desirable to add: "to introduce the indicator of the number of workplaces in state statistical reporting and in the system of plan indicators."

V. I. Rybin (Institute of Economics of the USSR Academy of Sciences). It seems expedient to include in the draft of the Main Directions the following paragraph: "To ensure the further strengthening of the Soviet ruble. To organize the planning of a uniform money turnover of the country (cash and noncash). To increase the role of credit in the economic regulation of the money turnover of the country, in the balance of the physical and value proportions, the flow of money and goods in the national economy, the material, manpower and financial resources of enterprises, associations, sectors. To improve the structure of credit resources and to develop consumer credit."

In the concluding speech T. S. Khachaturov noted that all those who spoke approved of the draft of the CPSU Central Committee "The Main Directions of USSR Economic and Social Development for 1981-1985 and the Period to 1990." The suggestions and remarks made during the discussion will be conducive to the more complete implementation of the measures contained in the Main Directions.

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CSO: 1820

INDEX METHOD OF PRICE, COST ANALYSIS EXPLAINED

Moscow VESTNIK STATISTIKI in Russian No 1, Jan 81 pp 19-26

/Article by O. Kopylova and M. Krylov: "The Index Method of Analysis of Average Wholesale Prices and the Average Industrial Production Cost (Using the Example of Sectors of the Fuel Industry)"/

/Text/ One of the most important problems of the theory of statistics is the further development of the methodology of the factor index analysis of changes in the average qualitative indicators, particularly prices and cost.

When studying the changes in the average cost and average prices it is important to answer the question, as a result of the influence of what factors did this indicators change and by how much.

A system of indices as applied to the set being compared: the indices of variable composition ($i_{\text{пер. сост}}$), of fixed composition ($i_{\text{пост. сост}}$) and of the influence of structural displacements (i_d), has been elaborated in the theory of statistics for the factor analysis of the changes in the average group quality indicators. It is more difficult to study the influence of structural changes in the entire set (comparable and incomparable) on the change of the average value, since the structural changes result not only from a different degree of dynamics of the volumes of output for some comparable items or enterprises or others, but also from the output of new items and the discontinuation of old items, the placement of new enterprises into operation and the closing of old ones. Therefore, for the study of the influence of individual factors on the change of the average group prices and cost for the entire set we propose a more complex system of interrelated indices (as compared with the one used in statistical literature):

$$i_{\bar{z}} = \bar{i}_{zc} \cdot i_{\bar{z}c_{d_q}} \cdot i_{\bar{z}_{\text{нов (ввод)}}} \cdot i_{\bar{z}_{\text{сн (закр)}}}, \quad (1)$$

$$i_{\bar{p}} = \bar{i}_{pc} \cdot i_{\bar{p}c_{d_q}} \cdot i_{\bar{p}_{\text{нов (ввод)}}} \cdot i_{\bar{p}_{\text{сн (закр)}}}, \quad (2)$$

where $\bar{i}_{zc}$ and $\bar{i}_{pc}$ are the indices of the average group cost and the average group prices, which have been calculated for comparable items (enterprises) and characterize the change of the indicators on the average, that is, the indices of fixed

composition; $i_{\bar{z}^c_{d_q}}$ and $i_{\bar{p}^c_{d_q}}$ are the indices of the influence of the change in structure for comparable items on the change of the average cost and the average prices; $i_{\bar{z}_{нов\ (ввод)}}$ and $i_{\bar{p}_{нов\ (ввод)}}$ are the indices of the influence of the updating of production (the placement of new enterprises into operation) on the change of the average cost and average prices; $i_{\bar{z}_{сн\ (закр)}}$ and $i_{\bar{p}_{сн\ (закр)}}$ are the indices of the influence of the discontinuation of production (the closing of old enterprises) on the change of the average cost and the average prices.

The indices of the average cost (or average prices) of fixed composition and the indices of the influence of structural displacements for comparable items (enterprises) on the change of the average value are calculated by equations which have been developed in the theory of statistics:[1]

$$i_{\bar{z}^c} = \frac{\bar{z}^c_1}{\bar{z}^{c'}_0} = \frac{\sum z_1 q^c_1}{\sum q^c_1} : \frac{\sum z_0 q^c_1}{\sum q^c_1} = \frac{\sum z_1 q^c_1}{\sum z_0 q^c_1} = \frac{\sum z_1 d_{q^c_1}}{\sum z_0 d_{q^c_1}}, \quad (3)$$

$$i_{\bar{z}^c_{d_q}} = \frac{\bar{z}^{c'}_0}{\bar{z}^c_0} = \frac{\sum z_0 q^c_1}{\sum q^c_1} : \frac{\sum z_0 q^c_0}{\sum q^c_0} = \frac{\sum z_0 d_{q^c_1}}{\sum z_0 d_{q^c_0}}. \quad (4)$$

We propose to determine the change of the average cost as a result of the influence of the updating and discontinuation of production (the placement into operation and closing of enterprises) by the following equations:

$$i_{\bar{z}_{нов\ (ввод)}} = \bar{z}_1 : \bar{z}^c_1 = \frac{\sum z_1 q_1}{\sum q_1} : \frac{\sum z_1 q^c_1}{\sum q^c_1}, \quad (5)$$

$$i_{\bar{z}_{сн\ (закр)}} = \bar{z}^c_0 : \bar{z}_0 = \frac{\sum z_0 q^c_0}{\sum q^c_0} : \frac{\sum z_0 q_0}{\sum q_0}, \quad (6)$$

where $\bar{z}^c_0$ and $\bar{z}^c_1$ are the average cost of a unit of output during the base and accounting periods for comparable items (enterprises); $\bar{z}_0$ and $\bar{z}_1$ are the average cost of a unit of output during the base and accounting periods for all items (enterprises).

The methodology of calculating the indices of the influence of the updating and discontinuation of production (the placement into operation and closing of

1. In the article in this and subsequent cases the equations will be cited only using the example of the analysis of the cost, since its methodology is analogous to the methodology of the analysis of the change of prices.

enterprises) is based on the fact that the difference between $\bar{z}_1$ and $\bar{z}_1^c$ is governed by the output of new products (the placement of enterprises into operation), while the difference between $\bar{z}_0$ and $\bar{z}_0^c$ is governed by the discontinuation of production (the closing of enterprises).

The product of these two indices characterizes the influence of the interchangeability of the output of products (or the group of enterprises) on the change of the average cost (or average prices) for the entire set:

$$i_{\bar{z}_{\text{см}}} = i_{\bar{z}_{\text{нов (ввод)}}} \cdot i_{\bar{z}_{\text{сн (закр)}}} = \frac{\bar{z}_1}{\bar{z}_1^c} \cdot \frac{\bar{z}_0^c}{\bar{z}_0}. \tag{7}$$

This index can also be obtained by dividing the index of the average cost of all production (all enterprises) by the index of the average cost of the comparable product (comparable enterprises):

$$i_{\bar{z}_{\text{см}}} = i_{\bar{z}} : i_{\bar{z}^c} = \frac{\bar{z}_1}{\bar{z}_0} : \frac{\bar{z}_1^c}{\bar{z}_0^c} = \frac{\bar{z}_1}{\bar{z}_1^c} \cdot \frac{\bar{z}_0^c}{\bar{z}_0}. \tag{8}$$

Consequently, the system of interrelated indices (1) can be written as:

$$i_{\bar{z}} = \frac{\bar{z}_1^c}{\bar{z}_0^{c'}} \cdot \frac{\bar{z}_0^{c'}}{\bar{z}_0^c} \cdot \frac{\bar{z}_1}{\bar{z}_1^c} \cdot \frac{\bar{z}_0^c}{\bar{z}_0} = \frac{\bar{z}_1}{\bar{z}_0} \tag{9}$$

The difference between the numerators and denominators of the indices is the absolute changes of the average cost of production. The total change of the average cost of production is

$$\Delta \bar{z} = \bar{z}_1 - \bar{z}_0, \tag{10}$$

including the change caused by:

the change of the average cost of a unit of output for comparable items (enterprises)— $\Delta \bar{z}^c = \bar{z}_1^c - \bar{z}_0^{c'}$, (11)

the change of the structure of the set for comparable items (enterprises)— $\Delta \bar{z}_{d_q}^c = \bar{z}_0^{c'} - \bar{z}_0^c$, (12)

the updating of production (the placement of new enterprises into operation)— $\Delta \bar{z}_{\text{нов (ввод)}} = \bar{z}_1 - \bar{z}_1^c$, (13)

the discontinuation of production (the closing of old enterprises)— $\Delta \bar{z}_{\text{сн (закр)}} = \bar{z}_0^c - \bar{z}_0$. (14)

The amounts of the adjusted absolute changes of the average cost are also interrelated, that is,

$$\Delta\bar{z} = \Delta\bar{z}^{c} + \Delta\bar{z}^{c}_{d_q} + \Delta\bar{z}_{\text{пов (ввод)}} + \Delta\bar{z}_{\text{сн (закр)}}. \qquad (15)$$

At the same time it should be noted that the examined equations are applicable in analyzing the change of the average cost (or price) for one group of products (enterprises). But, as a rule, the set being studied consists of several groups of products (or enterprises), and then the problem of studying the influence of not only the intragroup structural displacements, but also the intergroup structural displacements arises.

Let us examine the methodology of analyzing the average cost using the example of one of the associations of the fuel industry, to which groups of mines and open pits belong (see Tables 1 and 2); here the intragroup structure of the set during the base and accounting periods is d_{n0} and d_{n1}, the intergroup structure of the set during the base and accounting periods is d_{o0} and d_{o1}.

According to the data of Tables 1 and 2 let us specify the system of indices and the absolute changes of the average cost of the mining of shale by the underground (in mines) and open-cut (in pits) methods.

1. In the Mining of Shale by the Underground (in Mines) Method

$$i_{\bar{z}} = \bar{z}_1 : \bar{z}_0 = \frac{\sum z_1 d_{n1}}{\sum z_0 d_{n0}} = 3.46 : 3.20 = 1.081, \text{ or } 108.1 \text{ percent};$$

$\Delta\bar{z} = 3.46 - 3.20 = +0.26$ ruble, or +26 kopecks;

$$I_{\bar{z}^c} = \bar{z}^c_1 : \bar{z}^{c'}_0 = \frac{\sum z_1 d^c_{n1}}{\sum z_0 d^c_{n1}} = 3.17 : 3.18 = 0.997, \text{ or } 99.7 \text{ percent};$$

$\Delta\bar{z}^c = 3.17 - 3.18 = -0.01$ ruble, or -1 kopeck;

$$i_{\bar{z}^c_{d_q}} = \bar{z}^{c'}_0 : \bar{z}^c_0 = \frac{\sum z_0 d^c_{n1}}{\sum z_0 d^c_{n0}} = 3.18 : 3.24 = 0.981, \text{ or } 98.1 \text{ percent};$$

$\Delta\bar{z}^c_{d_q} = 3.18 - 3.24 = -0.06$ ruble, or -6 kopecks;

$$i_{\bar{z}_{(\text{ввод})}} = \bar{z}_1 : \bar{z}^c_1 = \frac{\sum z_1 d_{n1}}{\sum z_1 d^c_{n1}} = 3.46 : 3.17 = 1.091, \text{ or } 109.1 \text{ percent};$$

$\Delta\bar{z}_{(\text{ввод})} = 3.46 - 3.17 = +0.29$ ruble, or +29 kopecks;

$$i_{\bar{z}_{(\text{закр})}} = \bar{z}^c_0 : \bar{z}_0 = \frac{\sum z_0 d^c_{n0}}{\sum z_0 d_{n0}} = 3.24 : 3.20 = 1.012, \text{ or } 101.2 \text{ percent};$$

$\Delta\bar{z}_{(\text{закр})} = 3.24 - 3.20 = +0.04$ ruble, or +4 kopecks.

Table 1

Average Cost, Average Wholesale Prices and the Structure of Shale Mining at a Production Association (the Data Are Arbitrary)

Mines and pits	Total cost of 1 ton for the period, rubles		Wholesale price of 1 ton for the period, rubles		Proportion of shale mining (d_n) in mining by the underground and open-cut method, percent			
					for entire set of enterprises for the period		for comparable set of enterprises for the period	
	base z_0	accounting z_1	base p_o	accounting p_1	base d_{n0}, d_{o0}	accounting d_{n1}, d_{o1}	base d^c_{n0}, d^c_{o0}	accounting d^c_{n1}, d^c_{o1}
	1	2	3	4	5	6	7	8
Mines								
No 1.	3.12	—	5.20	—	11.8	—	X	X
No 2.	3.01	—	5.04	—	12.7	—	X	X
No 3.	3.52	3.61	5.89	5.27	9.7	1.8	12.9	2.4
No 4.	3.46	3.62	4.49	4.02	10.0	11.0	13.2	15.0
No 5.	3.24	3.06	4.40	4.15	10.8	12.8	14.3	17.5
No 6.	3.04	3.00	4.60	4.07	12.5	12.8	16.6	17.4
No 7.	3.05	2.84	4.53	4.05	13.6	14.5	18.0	19.7
No 8.	2.57	2.65	4.10	3.67	8.7	11.2	11.5	15.3
No 9.	3.86	4.03	4.27	3.68	10.2	9.4	13.5	12.7
No 10	—	4.27	—	3.43	—	26.5	X	X
Total for mines . . .	3.20	3.46	4.73	3.83	100.0	100.0	100.0	100.0
Proportion of mines in total mining (d_0).	X	X	X	X	72.5	50.6	66.6	54.3
Pits								
No 1.	2.05	1.46	3.44	3.04	28.2	23.8	28.2	37.5
No 2.	1.72	1.58	3.43	3.02	71.8	39.5	71.8	62.5
No 3.	—	2.13	—	3.15	—	26.7	X	X
No 4.	—	2.65	—	2.56	—	10.0	X	X
Total for pits. . . .	1.82	1.81	3.43	3.02	100.0	100.0	100.0	100.0
Proportion of pits in total mining (d_0) . .	X	X	X	X	27.5	49.4	33.4	45.7
Total for association.	2.82	2.64	4.37	3.43	100.0	100.0	100.0	100.0

Table 2

Average Cost of Shale Mining by Underground and Open-Cut Methods for the Association (According to the Data of Table 1, Rubles)

Method of mining	For entire set of enterprises for the period		For comparable set of enterprises for the period		base period according to structure of mining in accounting period
	base $\bar{z}_0$	accounting $\bar{z}_1$	base $\bar{z}_0^c$	accounting $\bar{z}_1^c$	$\bar{z}_0^{c'}$
Underground (mines). .	3.20	3.46	3.24	3.17	3.18
Open-cut (pits). . . .	1.82	1.81	1.82	1.54	1.84
Average for the association.	2.82	2.64	2.76	2.43	2.57

The interrelationship of the calculated indicators is as follows:

$$1.081 = 0.997 \cdot 0.981 \cdot 1.091 \cdot 1.012, \text{ or}$$
$$+26 = -1 + (-6) + 29 + 4 \text{ (kopecks)}.$$

Consequently, the increase of the average cost of shale mining by the underground method by 8.1 percent is mainly connected with the placement into operation of Mine No 10, at which 26.5 percent of all the shale was mined, but the level of the cost of shale mining at the mine was higher than at the mines previously put into operation.

After the closing of two mines with a lower cost of shale mining its average cost increased by 4 kopecks. As a result of structural displacements in shale mining for a comparable set of mines the average cost of mining decreased by 6 kopecks. With the placement into operation and the closing of mines the structure of their total set changes in dynamics.

As a result of the influence of the factor of the structure the average cost of shale mining by the underground method increased by 27 kopecks ((-6) + 29 + 4 = 27), or by 8.4 percent, while as a consequence of the change of the levels of the cost of shale mining on the average for the comparable set of mines it decreased by 1 kopeck, or 0.3 percent.

II. In the Mining of Shale by the Open-Cut (in Pits) Method

$i_{\bar{z}} = \bar{z}_1 : \bar{z}_0 = 1.81 : 1.82 = 0.995$, or 99.5 percent, $\Delta\bar{z} = -1$ kopeck,

$\bar{i}_{z^c} = \bar{z}_1^c : \bar{z}_1^{c'} = 1.54 : 1.84 = 0.837$, or 83.7 percent, $\Delta\bar{z}^c = -30$ kopecks,

$i_{\bar{z}^c_{d_q}} = \bar{z}_0^{c'} : \bar{z}_0^c = 1.84 : 1.82 = 1.017$, or 101.7 percent, $\Delta\bar{z}_{d_q} = +2$ kopecks,

$i_{\bar{z}_{(ввод)}} = \bar{z}_1 : \bar{z}_1^c : 1.81 : 1.54 = 1.175$, or 117.5 percent, $\Delta\bar{z}_{(ввод)} = +27$ kopecks,

$i_{\bar{z}_{(закр)}} = \bar{z}_0^c : \bar{z}_0 = 1.82 : 1.82 = 1$, or 100 percent, $\Delta\bar{z}_{(закр)} = 0$.

Thus, on the average the cost of shale mining in the comparable pits decreased by 30 kopecks, but due to the placement of two new pits into operation the average cost increased by 27 kopecks. In the shale mining for comparable pits negligible structural displacements occurred, which also governed the increase of the average cost by 2 kopecks. As a result the average cost of open-cut shale mining decreased by only 1 kopeck, or 0.5 percent.

When analyzing the change in the average cost of shale mining for the association as a whole, it should be borne in mind that its amount, along with the change of the cost of shale mining in individual mines and pits, is influenced both by the changes in the structure of mining within groups of mines and pits (the intragroup structure), which are manifested in the average cost of shale mining by the underground and open-cut methods, and by the changes of the correlations between groups of mines and pits (the intergroup structure). In this connection the problem arises: from the total amount of influence of the structural displacements on the change of the average cost of shale mining to distinguish separately the influence of the intragroup and intergroup structures both for the comparable set of enterprises and as a result of the placement of new mines and pits into operation and their closing.

For the factor analysis of the change in the average cost of shale mining for the association ($\bar{z}$) let us use the above-examined system of indices:

$$i_{\bar{z}} = \bar{i}_{z^c} \cdot i_{\bar{z}^c_{d(общ)}} \cdot i_{\bar{z}_{ввод\ (общ)}} \cdot i_{\bar{z}_{закр\ (общ)}}, \tag{16}$$

$$i_{\bar{z}} = \frac{\bar{z}_1}{\bar{z}_0} = \frac{\sum z_1 d_{n1} d_{o1}}{\sum z_0 d_{n0} d_{o0}} = \frac{\sum \bar{z}_1 d_{o1}}{\sum \bar{z}_0 d_{o0}} \tag{17}$$

$$\bar{i}_{z^c} = \frac{\bar{z}_1^c}{\bar{z}_0^{c'}} = \frac{\sum z_1 d_{n1}^c d_{o1}^c}{\sum z_0 d_{n1}^1 d_{o1}^c} = \frac{\sum z_1^c d_{o1}^c}{\sum z_0^{c'} d_{o1}^c} = \frac{\sum \bar{z}_1^c}{\sum z_0^{c'} d_{o1}^c}, \tag{18}$$

$$i_{\bar{z}^c_{d(общ)}} = \frac{\bar{z}_0^{c'}}{\bar{z}_0^c} = \frac{\sum z_0 d_{n1}^c d_{o1}^c}{\sum z_0 d_{n0}^c d_{o0}^c} = \frac{\sum z_0^{c'} d_{o1}^c}{\sum z_0^c d_{o0}^c} = \frac{\sum \bar{z}_0^{c'} d_{o1}^c}{\sum \bar{z}_0^c}, \tag{19}$$

$$i_{\bar{z}\ \text{ввод (общ)}} = \frac{\bar{z}_1}{\bar{z}_1^c} = \frac{\sum z_1 d_{n1} d_{o1}}{\sum z_1 d_{n1}^c d_{o1}^c} = \frac{\sum \bar{z}_1 d_{o1}}{\sum \bar{z}_1^c d_{o1}^c}, \qquad (20)$$

$$i_{\bar{z}\ \text{закр (общ)}} = \frac{\bar{z}_0^c}{\bar{z}_0} = \frac{\sum z_0 d_{n0}^c d_{o0}^c}{\sum z_0 d_{n0} d_{o0}} = \frac{\sum \bar{z}_0^c d_{o0}^c}{\sum \bar{z}_0 d_{o0}}. \qquad (21)$$

On the basis of the data of Tables 1 and 2 the corresponding indices and absolute amounts of the changes in the average cost of shale mining for the association as a whole were calculated:

$$0.936 = 0.946 \cdot 0.930 \cdot 1.086 \cdot 0.979, \text{ or}$$
$$-18 = -14 + (-19) + 21 + (-6) \text{ (kopecks)}.$$

The average cost of shale mining for the association as a whole decreased by 18 kopecks: due to its reduction for individual mines and pits for the comparable set (-14 kopecks), as a result of a change of the structure of mining in the comparable mines and pits (-19 kopecks), the closing of two mines (-6 kopecks) and the increase of the average cost due to the placement of new mines and pits into operation by 21 kopecks.

In the system of indices in question (16) the influence of the change of the structure on the change of the average cost is determined by the influence of three indices: the change of the structure of mining for the comparable set of enterprises ($i_{\bar{z}^c_{d(\text{общ})}}$), the influence of the placement into operation and closing of enterprises ($i_{\bar{z}\ \text{ввод (общ)}}$ and $i_{\bar{z}\ \text{закр (общ)}}$). As was already noted, each of these indices, which are calculated for the association as a whole, reflects the influence of two types of structures: the intragroup structure, which takes the form of the change in the proportions of mining within the groups of mines and pits ($d_п$ and $d_п^c$), and the intergroup structure, which takes the form of the changes in the correlations between groups of mines and pits, between underground mining and open-cut mining (d_o and d_o^c). Therefore in the factor analysis of the change of the average cost it is necessary in each of the indicated indices to distinguish the influence of the intragroup and intergroup structures, in connection with which the system of indices (16) must be written in the following form:

$$i_{\bar{z}} = \bar{i}_{z^c} \cdot \underbrace{i_{\bar{z}^c_{d(\text{внгр})}} \cdot i_{\bar{z}_{d(\text{межгр})}}}_{} \cdot \underbrace{i_{\bar{z}\ \text{ввод(внгр)}} \cdot i_{\bar{z}\ \text{ввод(межгр)}}}_{} \cdot \underbrace{i_{\bar{z}\ \text{закр(внгр)}} \cdot i_{\bar{z}\ \text{закр(межгр)}}}_{},$$

or

$$\frac{\bar{z}_1}{\bar{z}_0} = \frac{\bar{z}_1^c}{\bar{z}_0^{c'}} \cdot \underbrace{\frac{\bar{z}_0^{c'}}{\sum \bar{z}_0^c d_{o1}^c} \cdot \frac{\sum \bar{z}_0^c d_{o1}^c}{\bar{z}_0^c}}_{} \cdot \underbrace{\frac{\bar{z}_1}{\sum \bar{z}_1^c d_{o1}} \cdot \frac{\sum z_1^c d_{o1}}{\bar{z}_1^c}}_{} \cdot \underbrace{\frac{\bar{z}_0^c}{\sum \bar{z}_0 d_{o0}^c} \cdot \frac{\sum \bar{z}_0 d_{o0}^c}{\bar{z}_0}}_{}.$$

In our example (according to the data of Tables 1 and 2) the relative and absolute changes of the average cost were:

$$0.936 = 0.946 \cdot \underbrace{0.992 \cdot 0.938} \cdot \underbrace{1.118 \cdot 0.971} \cdot \underbrace{1.007 \cdot 0.972},$$

or

$$-18 = -14 + \underbrace{(-2) + (-17)} + \underbrace{28 + (-7)} + \underbrace{2 + (-18)} \text{ (kopecks)}.$$

The results of the calculations of the influence of the individual factors on the change of the average cost of mining by the underground method (for the group of mines), by the open-cut method (for the group of pits) and for the association as a whole are cited in Table 3.

Table 3

Change of the Average Cost of Mining 1 Ton of Shale as a Result of the Influence of Individual Factors (in Kopecks)

	Shale mining by the method		Production association
	underground	open-cut	
Change of average cost of mining 1 ton of shale	+26	-1	-18
including as a result of:			
1. Change of the cost of mining in individual mines and pits for their comparable set	-1	-30	-14
2. Influence of structural displacements in shale mining--total . .	+27	+29	-4
of them:			
2.1. As a result of a change of the proportion of mining in comparable mines and pits .	-6	+2	-19
including under the influence of changes of the structure:			
intragroup	-6	+2	-2
intergroup	X	X	-17
2.2. As a result of the placement of new mines and pits into operation	+29	+27	+21
including under the influence of changes of the structure:			
intragroup	+29	+27	+28
intergroup	X	X	-7
2.3 As a result of the closing of mines and pits	+4	--	-6
including under the influence of changes of the structure:			
intragroup	+4	--	+2
intergroup	X	X	-8

From the data of Table 3 it is evident that the decrease of the average cost of the mining of 1 ton of shale for the association as a whole by 18 kopecks, or 6.4 percent, was achieved mainly by a decrease of the cost of mining in the individual comparable mines and pits by 14 percent or nearly 5 percent, while as a result of structural displacements in shale mining it decreased by only 4 kopecks, or 1.4 percent (and the influence of the changes of the intragroup and intergroup structures was in different directions). Whereas the intragroup structural shifts caused an increase of the average cost by 28 kopecks ((-2) + 28 + 2 = 28), the intergroup structural shifts caused its decrease by 32 kopecks ((-17) + (-7) + (-8) = (-32)). The influence of the change of the intragroup structure is mainly connected with the placement into operation of new mines and pits (+28 kopecks), at which the level of the cost of mining was considerably higher than the level of the average group cost for the mines and pits. The influence of the change of the intergroup structure was equally caused by both the change of the proportion of underground and open-cut mining for the comparable set of mines and pits (-17 kopecks) and the placement into operation and the closing of mines and pits ((-7) + (-8) = (-15) kopecks).

As was indicated above, a system of interrelated indices is also applicable for the factor analysis of the change of average prices:

$$i_{\bar{p}} = \bar{i}_{p^c} \cdot i_{\bar{p}^c_{d(\text{внгр})}} \cdot i_{\bar{p}^c_{d(\text{межгр})}} \cdot i_{\bar{p}_{\text{ввод}(\text{внгр})}} \cdot i_{\bar{p}_{\text{ввод}(\text{межгр})}} \cdot i_{\bar{p}_{\text{закр}(\text{внгр})}} \cdot i_{\bar{p}_{\text{закр}(\text{межгр})}}.$$

The equations of the corresponding indices of the prices are construction in much the same way as the equations of the indices of the cost. Moreover, it should be indicated that the examined equations of the indices of the average group cost (just as the indices of the average group prices) are also applicable when the change of the cost and prices for some products list group or other is analyzed. In this case the influence of the changes in the output due to the production of new products and the discontinuation of old products will be measured instead of the placement into operation and the closing of an enterprise.

The proposed factor analysis of the average prices and cost can be made when the appropriate information, which at present individual enterprises and associations have, is available. Special, one-time surveys will be needed for making a factor index analysis of the changes of the average prices and cost for groups of enterprises.

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CSO: 1820

KAZAKH FINANCE MINISTRY OFFICIAL ANALYZES PROFITABILITY

Moscow FINANSY SSSR in Russian No 11, Nov 80 pp 29-31

[Article by K.K. Ketebayev, candidate of economic sciences, chief of administration of Kazakh SSR Ministry of Finance: "Factorial Analysis of the Sectorial Profitability of Kazakhstan's National Economy"]

[Text] Kazakhstan as a large economic region of the Soviet Union makes a significant contribution to the solution of the problem of supplying the country with metal, fuel and agricultural raw materials. The volume of the gross national product in the republic has increased 2.6-fold over the past fifteen years. Oil production has grown 9.1-fold, that of rolled ferrous metals--11.3-fold, mineral fertilizers--10.7-fold, steel--5.2-fold, cotton-fabrics--5.3-fold, grain--3.5-fold, meat--2.5-fold, milk--1.4-fold, construction-installation work--2.3-fold and freight hauling--2.4-fold. There has been created a new industrial sector--the gas sector. The development of Kazakhstan's economy has been helped by international aid from all the union republics. Just during 1961-1978, 11.2 billion rubles were allocated from the union budget for the development of the national economy of Kazakh SSR.

Significant monetary accumulations were allocated through the budget to the corresponding sectors of the republic's economy. The following data attest to the growth of profit volume during 1965-1980:

(Billions of rubles)

	1965 (Record)	1980 (Plan)
Monetary accumulations	1.2	6.7
including:		
turnover tax (after a minus difference for prices)	1.1	1.1
profit	0.1	5.6

During the 10th Five-Year Plan as a result, fixed production capital in the republic will grow 24 percent, industrial production--22.1 percent and agricultural gross production will attain 47.3 billion rubles. Gross national product will increase by 26.3 percent and national income by 30.1 percent.

During the Seventh Five-Year Plan, agriculture and construction organizations produced, respectively, 22.2 and 15.6 percent of the gross national product, but were

operating at a loss. Industry with a relative share of 49 percent in the national product provided 35 percent of total profit volume. The share of transport and communications in the production of the national product amounted to only 7 percent, but 47 percent in the sum of accumulations. Thus during this period, the chief profitable sectors were industry and transport.

In the 10th versus the Seventh Five-Year Plan, profit in industry will increase 8.1-fold. Construction provies 9.6 percent of profit with a relative share of 14 percent in the gross national product. Agriculture produces almost one-fourth of the national product, but its profit share remains insignificant. The profit of transport and communications enterprises will grow 2.2-fold, but their share in the total sum of profit of the national economy is dropping. To sum up, in the 10th Five-Year Plan, the leading sectors of the national economy of the republic providing for growth of accumulations are industry, transport, communications and construction organizations, which produce 68.6 percent of the gross national product of the republic and provide 80 percent of profit.

There has been an increase in the relative share of the production output of such highly profitable sectors of industry as petroleum-production, petroleum-refining and petrochemical. The relative share of power, chemical industry, ferrous and nonferrous metallurgy has significantly changed. During the 10th Five-Year Plan, as a result of intersectorial and intrasectorial structural changes in the production of industrial output, about 250 million rubles of additional profit will be produced.

Production is developing at large regional complexes depending on natural resources and the needs of the national economy. These factors exert a significant influence on profit. On the whole, expenditures per unit of end production in nonferrous metallurgy increased due to the reduction of useful elements in the mined raw material. As a result profit was reduced from 463 million rubles in 1970 to 226 million rubles in 1980.

The electric-power [energeticheskaya] industry is a leading sector of the republic. Of total profit, the share of the industry is 15 percent. In 1970 versus 1965, profit growth from production activity reached 66.5 million rubles, in 1975 versus 1970 --116 million rubles and in 1980 versus 1975--versus 86.8 million rubles. At the same time during the Ninth and 10th Five-Year Plans, a significant influence on profit size was exerted by changes in prices and rates, norms of amortization deductions and conditions of wage payments to industrial personnel.

Of the total profit growth (615.2 million rubles) in the Ninth Five-Year Plan versus the Eighth, 456 million rubles were obtained, or 75 percent from production activity. During the years of the Ninth Five-Year Plan profit growth from production activity amounted to 649 million rubles and growth of balance profit--248.8 million rubles. The advancing growth of monetary accumulations compared to the gross national product is the result of increasing productivity of national labor and economy of material resources. In the given case, the dynamics of monetary accumulations fully reflect the rising efficiency of social production.

During 1965-1979, much was accomplished in the sectors of the republic's national economy to raise the economic efficiency of operation of industrial enterprises,

sovkhozes, and construction, transport and trade organizations. As the result of public production, rising labor productivity and lower production expenditures as well as a revision in 1967 of wholesale prices of industrial production, the number of economic losses during 1976-1978 was 27.8 percent versus 40.4 percent during 1961-1965. Their number in industry and construction was reduced more than twofold. Analysis shows that the reasons for operation at a loss vary for different sectors of the economy: relatively inferior natural and transport conditions; backwardness in the equipment of some enterprises; long duration of assimilation of new forms of production; noncomplex construction; unfavorable weather and climatic conditions. Consequently, reduction of operating at a loss should be aided by the implementation of complex of economic engineering measures aimed at raising the technical level and organization of production.

The main production-growth factor for the last three five-year plans has been increase of public production. Thanks to growth of volume of the gross national product, the volume of monetary accumulations and profit has trebled. Growth of the productivity of social labor has exerted a tremendous influence on increasing profit. Through improvement of sectorial structure, introduction into production of the achievements of science, technology and scientific organization of labor, reequipment of the most important sectors of the national economy, it has grown 1.8-fold.

Labor-productivity growth has been of tremendous national-economic importance. Through release of manpower, it has made it possible to bring up to full strength numerous newly operative large production installations and enterprises of the nonproduction sphere. From introduction into production of inventions and efficiency proposals and also new-technology measures, Kazakhstan's industry will achieve an economic gain of 1.8 billion rubles during the 10th Five-Year Plan. It will be an increase of 30.5 percent over the Ninth Five-Year Plan.

But there are still here large unused resources. Many of the republic's industrial ministries have consistently failed to fulfill plans for the introduction of new equipment; in a number of cases, the economic effectiveness of implemented measures has been low. Serious defects are to be found in determination of the economic effect and its reflection in statistical reports as well as in the accounting of actual expenditures on the introduction of new equipment. For example in 1978 and for the first quarter of 1979, the economic effect of introducing new equipment at five examined enterprises of the Ministry of Nonferrous Metallurgy, according to the data of statistical reports, amounted to 9 and 1.8 million rubles, while economies from reduction of production cost amounted to only 1.1 and 0.1 million rubles. Thus the report of the Achisay Combine showed an effect of 1.8 million rubles for 1978, while the increase in the cost of production versus the plan amounted to 7 million rubles. A similar situation is to be found at a number of other enterprises. Comparison of these data gives rise to a doubt about the economic effect shown in the report.

A check disclosed that the Kazakh Ministry of Nonferrous Metallurgy does not exercise control over the deduction of funds into the United Fund for the Development of Science and Technology; as a result many enterprises have deducted pertinent plan-size sums independently of fulfillment of profit targets, and this has led to a significant diversion of working capital. The creation of such a fund has now been provided for at all the industrial ministries, and sectorial scientific-research, design and technological organizations are being converted to cost accounting. The use of a united fund for technical progress and the introduction of a cost-accounting

system of work organization for the creation, introduction and utilization of new equipment should contribute to a real rise in the profitability of industrial production. During the 10th Five-Year Plan, it is anticipated that almost 3.5 billion rubles in the republic will come from structural changes, growth of labor productivity and the introduction of new equipment, inventions and efficiency proposals.

Major measures have been carried out on raising the wages of workers of material production, but due to wholesale-price changes in the structure of the gross national product, the relative share of wages has dropped from 36 percent in 1965 to 27 percent in 1980 with a concomitant growth of the relative share of monetary accumulations from 7 to 14.4 percent.

In the structure of the republic's gross national product, more than half consists of material expenditures and amortizations, which in 1980 will reach 58.1 percent versus 57 percent in 1965. Much has been done for the lowering of material and power outlays for production output, but the existing reserves are still not being completely used. This applies in particular to boosting of the efficiency of producer capital.

In an analysis of reduction of the cost of production work and services, it should be kept in mind that in the gross national product produced in the republic, material production expenditures comprise 56.8 percent, while in industry they amount to 69.2 percent. If they be reduced by only one percent, then Kazakhstan national income will be increased by not less than 228 million rubles a year, including 139 million rubles in industry, 45 million rubles in agriculture and 30 million rubles in construction. In this connection, the problems of reducing material outlays on production output are as pressing as formerly and so is the implementation of various measures for this.

The further improvement of price formation for the products of industry, the introduction of pay for water used by industrial enterprises from water-supply systems, the raising of existing rates of payments for state social insurance and a number of other measures will lead to changes in the sectorial structure of monetary accumulations, particularly profit. Its role will be more important in the measurement of economic effectiveness and in the selection of economic variants for the development of production and ensuring of balance of natural-physical and monetary proportions.

For profit to become an important indicator of the efficiency of production in all sectors of the national economy in assessment of the fulfillment of both current and five-year plans is sensible, but in our view this indicator should be approved for ministries, departments and union republics for all operations within the framework of the state plan of economic and social development.

The growing volumes of public production and financial resources require the provision in all sectors of the national economy of rational and effective use of material, labor, financial resources and natural wealth for the purpose of achieving the best results in economic construction with the smallest outlays.

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CSO: 1820

ECONOMISTS WEIGH VARIOUS ASPECTS OF TECHNICAL PROGRESS

Contradictions of Progress

Moscow EKONOMICHESKIYE NAUKI in Russian No 1, Jan 81 pp 31-37

/Article by B. Smirnov, candidate of economic sciences: "Social and Economic Contradictions of Scientific and Technical Progress"/

/Text/ A successful solution of the economic and social problems facing our country at the present stage are determined to an ever greater extent by the rates of development and practical utilization of scientific and technological achievements. "Economic efficiency," Comrade L. I. Brezhnev noted in his speech at the October (1980) Plenum of the CPSU Central Committee, "is inseparably connected with the acceleration of scientific and technical progress."[1] The draft of the CPSU Central Committee for the 26th party congress "Basic Trends in the Economic and Social Development of the USSR for 1981-1985 and for the Period Until 1990" also indicates: "Further acceleration of scientific and technical progress must be ensured. A line of a more rapid retooling of production must be followed systematically in all national economic sectors..."[2]

Following Lenin's methodology, it can be stated that the elaboration of an effective mechanism of intensification of the processes of development and introduction of new equipment is based on a theoretical knowledge of the motive forces--objective nonantagonistic contradictions--inherent in them under socialism. The urgency of investigation of this problem becomes especially obvious if we take into consideration that the system of management of scientific and technical progress, which is to ensure its maximum acceleration, essentially, is a combination of the forms and methods of resolving its objective contradictions for the purpose of preventing their possible negative consequences and utilizing their motive force toward the attainment of society's social and economic aims. The content of the contradictions inherent in scientific and technical progress and recognized by society also determines the methods that should be used to resolve them in the practice of socialist management.

In accordance with Marxist-Leninist dialectics, as we see it, contradictions of scientific and technical progress under socialism should imply the interaction in a systematically organized national economy of mutually exclusive, mutually determining and mutually penetrating nonantagonistic opposite aspects (attributes) of the "science-production" process, which are the source of its acceleration and on this basis of an increase in the efficiency of social labor.

An examination of the contradictions of scientific and technical progress from the point of view of their role in the development of public production is one of the basic methodological principles of investigating the posed problem. It is especially important to stress this, because the contradictions inherent in the developing socialist economy often are identified with the negative phenomena still existing in it, phenomena with which the positive principle is contrasted.[3]

The contradictions of scientific and technical progress, like other objective internal contradictions of socialism, cannot be resolved by the liquidation and elimination of one of their constituent opposites.

Socialist society resolves such contradictions on the basis of a certain interaction and combination of their aspects. V. I. Lenin pointed out the combination of opposites as a means of solving problems under socialism: "... We, nevertheless, learned a little Marxism. We learned how and when opposites can and should be combined."[4] Hence it can be concluded that the development of economic methods, which would combine the opposites inherent in scientific and technical progress to the greatest extent and correspond to the objective logic of their unfolding, is one of the main tasks of acceleration of scientific and technical progress. The importance of this is manifested, for example, during the fixing of prices of new and obsolete articles, when it is necessary to take into account the contradictory movement of their production costs and profit. As is well known, expenditures regularly increase and profitability decreases at enterprises during the period of mastering new products. However, a prolonged output of the same products leads to a decrease in their production costs and increase in profitability. These two opposite processes should find a combination and resolution meeting the interests of socialist society to the greatest extent in the mechanism of stimulation of the renewal and increase in the efficiency of output by means of price formation.

The classification of the contradictions of scientific and technical progress is an important methodological problem of their investigation. Along with a certain scientific value it is also of great practical importance, contributing to a sound selection of the means of resolving the contradictions under consideration during the management of the development and introduction of new equipment.

First of all, it is necessary to single out into a special group the contradictions of scientific and technical progress as a category expressing the development of modern productive forces. In this respect scientific and technical progress represents a qualitatively new type of interaction (relation) of their basic elements--manpower and means of labor--enriched by science. This relation, which is considered one of the sources of scientific and technical development under socialism, contains two contradictory principles. On the one hand, society has needs unlimited in their nature for the development of production and for an increase in the efficiency of means of labor. On the other hand, at every given stage in the development of technology man has limited anatomophysiological, psychophysiological and skill capabilities to realize these needs.[5] In the course of production progress this contradiction is constantly resolved and constantly reappears. Its resolution and the realization of the motive force occur through the development of scientific knowledge, rise in workers' skill and educational level, creation of new equipment and transfer of man's labor functions, which limit an increase in production and in the efficiency of implements of labor, to it. At the same time, at different stages in development socialist society deals

with different factors limiting production growth. Under conditions of incomplete mechanization it is the need for a performance by a worker of labor intensive and often heavy auxiliary operations; with overall mechanization and incomplete automation, the monotony, uniformity and continuity of labor movements; at the stage of overall automation, the need for an analysis by a worker of a very large volume of information, which is connected with the control of an increasing number of technical parameters, with the high degree of requirements for the accuracy and reliability of measurements, with the consideration of random changes in the production process and so forth. All this lowers man's work fitness and the effectiveness of his managerial influences on means of production.

The data on the rates and level of mechanization and automation of production can give a certain idea of the present stage of technical progress in industry and its basic contradiction. These data show primarily that an intensive process of development and introduction of new equipment has continued in our country in the last few years. For example, from 1965 through 1979 the number of overall mechanized and automated sections, shops and production facilities in industry increased from 22,400 to 83,500, that is 3.7-fold and the number of these types of enterprises increased from 1906 to 6,389, or 3.4-fold. Almost one-half of all the workers are now engaged in observations of the operation of automatic machines and perform their functions by means of machines and mechanisms, which points to a significant increase in the machine-worker ratio.

At the same time, only 14 percent of the industrial enterprises are now at the stage of overall mechanization and automation. Their bulk is still at the stage of nonoverall mechanization and at the stage of transition to overally mechanized and automated production characterized by a contradiction between the needs for an increase in production and in the efficiency of machinery, on the one hand, and the limitations imposed on these processes connected with the need for a performance by workers of a large volume of labor intensive and often heavy nonmechanized auxiliary operations, on the other. The still insufficient rates of mechanization of these operations lead to the fact that at many enterprises the number of auxiliary workers is unjustifiably high and a considerable number of them are engaged in heavy and, as a rule, unskilled manual labor. A total of 13.6 million people (without taking kolkhoz members into account) were engaged in transport lifting, loading-unloading, warehouse and packaging operations in 1979. In accorance with the tasks set by the party and the government measures for an acceleration of the rates of overall mechanization and automation, especially in auxiliary and subsidiary operations, are implemented in our country. For example, in 1976-1978, as a result of the retooling of the national economy, 1.3 million people were relieved of heavy manual labor. These measures were further developed and specified in the decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality." It envisages setting special planned assignments for enterprises and associations for a reduction in the sphere of application of manual labor on the basis of the introduction of scientific and technical achievements, which, undoubtedly, will contribute to an acceleration of scientific and technical progress on the basis of a constructive resolution of its internal contradictions in the interest of the attainment of the aims of a developed socialist society.

Scientific and technical progress examined from the political and economic point of view appears in the form of a combination of production relations mediating the development of science and the creation and introduction of new equipment. It is rightful to single out the contradictions objectively inherent in these relations into a group of economic contradictions of scientific and technical progress. An investigation of the contradictions of economic interests of enterprises arising in the process of their activity connected with the mastering of new equipment and representing a manifestation of the contradictions of corresponding production relations deserves special attention.

In our opinion, the relation formed between the national economy and cost accounting enterprises during the formation of plans for new output and rise in the technical level of production is the initial and basic relation. In particular, this relation is manifested in the form of a contradiction between national economic and cost accounting interests connected with the mastering and output of new equipment intended for inclusion in an enterprise plan. Such a contradiction arises, because the economic effect of new equipment, as a rule, is realized outside the range of manufacturing enterprises, whereas the renewal and improvement in the quality of output increases production costs for them. At present in planning this contradiction is resolved through a direct inclusion in the program of enterprises of assignments for the output of highly efficient, new equipment necessary for the national economy, as well as the establishment for enterprises of a corresponding planned and stimulated indicator of output of new articles in the superior-quality category.

The contradictory nature of the interests of enterprises in the sphere of financing, price formation and material incentives for scientific and technical progress can be characterized as follows. During the development and mastering of new equipment a contradiction arises in the activity of enterprises between the needs for incurring a variety of additional expenditures (on research and development, creation of prototypes and so forth) and the necessity for withdrawing internal circulating capital for these purposes, which, as a rule, results in a temporary decrease in the volume indicators of production and cost accounting economic incentive funds. This contradiction is now resolved through the reimbursement of enterprises for the expenditures on mastering from sectorial funds for the financing of scientific and technical progress. At the same time, as of 1980 the cost of operations of an industrial nature connected with the mastering of new articles and performed at the expense of the unified fund for the development of science and technology is taken into account in the total volume of output of enterprises with an addition of the standard profit. As a result, the negative effect of mastering on the evaluation indicators of enterprises is eliminated and conditions for the fixing of stable prices of new output are created.

A contradiction due to differences in the costs of production of new products and their analogs produced for a long time also arises in the activity of enterprises. As is well known, the former is higher, which, all things being equal, lowers workers' interest in the renewal of articles. This contradiction is resolved through the fixing of a new price for an improved product, which compensates enterprises for the higher expenditures and yields them the standard profit.

Another contradiction in the interests of enterprises is due to the difference in the levels of profitability of new and previously mastered articles. As a rule, the standard profitability of the former is lower than the actual profitability of the latter. In our opinion, this contradiction should be resolved through a gradual reduction in the prices of long mastered products.

The contradiction between the interests of producers of new equipment arising in connection with the assignment of the economic effect to it should be included among the important economic contradictions of scientific and technical progress. As is well known, it is resolved through the distribution of the effect between the producer and the consumer by means of the price formation system. As a result, the producer receives part of the effect in the form of a certain increase in profitability in the price of new equipment, while for the consumer production costs decrease and profit increases respectively.

Finally, the contradiction arising as a result of the differences in the amount of incentive funds formed on the basis of the indicators of current production activity and for the development and introduction of new equipment should be noted. It is obvious that this contradiction should be resolved through preferential incentives for enterprise workers for the introduction of the achievements of scientific and technical progress.

The noted contradictions are by no means something negative. They are not the manifestation of someone's oversights, which can and should be eliminated. They are the reflection of the objective contradictory nature of economic forms of development of socialist production. Efficient incentives for the mastering and introduction of new equipment are created in enterprises only with a systematic and full resolution of the indicated contradictions.

As yet the mechanism of management of scientific and technical progress does not ensure such a resolution. For example, sectorial funds for the financing of science and technology do not compensate for all the additional expenditures of enterprises on new output. The mechanism of a gradual reduction in the prices of obsolete articles is not properly developed. As yet incentive premiums applied to prices for new goods do not always perform their stimulating role. In industry for many years bonuses for new equipment have remained much lower than bonuses for current results of economic activity.

Important measures for improvement in the economic levers of scientific and technical progress are envisaged in the decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality." In particular, it envisages a full coverage for the expenditures of enterprises on the mastering and introduction of new equipment, a significant increase in premiums applied to wholesale prices for highly efficient, new products and intensified sanctions for the output of obsolete low-quality products. One-time bonuses for the development, mastering and mass output of especially important and efficient types of machines and equipment and for the introduction of fundamentally new industrial processes are introduced in machine building. This stresses the special role of machine building in accelerating scientific and technical progress.

"In practice, the combination of science with production and the effect of progressive ideas on it proceed through machines and technology. Hence the role of machine building in the development of the national economy and in the advance of labor productivity is not comparable with anything."[6] A systematic implementation of all the mentioned measures will enhance the efficiency of the system of economic management of scientific and technical progress and increase the financial interest of enterprise workers in accelerating the processes of development and introduction of new equipment.

Examining the effect of science and technology on the social aspects of society's development, it is possible to single out a group of social contradictions of scientific and technical progress. Since under socialism labor is the most important social value, the investigation of the contradictory effect of new equipment and technology on its content and conditions, as well as of the factors affecting the development of workers' personalities and their satisfaction with labor, takes on special importance.

As practice shows, a change in the content of labor during a mass introduction of new equipment is a complex process, which is not always well-defined. On the one hand, the transfer of man's uniform and monotonous functions to machines, which accompanies technical progress, greatly modifies the functions remaining to him and, ultimately, makes them intellectually more saturated and capacious. This tendency forms the basis for an increase in the rich content of workers' labor and rise in their skill and educational level. In particular, it is manifested in the fact that the number of skilled workers who graduated from our country's vocational and technical educational institutions in 1965-1979 increased 2.1-fold and the number of workers annually improving their skills increased 3.1-fold during that time. From 1959 through 1979 the proportion of workers with incomplete secondary and higher education increased from 39.6 to 75 percent.

At the same time, there is another tendency. At certain stages of technical progress the labor process is simplified maximally, leaving purely technical functions to workers. The data of investigations show that in the shops of enterprises with the predominance of semiautomatic equipment the complexity and rich content of performed operations (for example, the loading by an operator of semiautomatic machines with parts) are much lower than in shops with general-purpose equipment. Together with a decrease in the rich content of labor the degree of workers' satisfaction with it is also lowered. The negative factors affecting the content of workers' labor are eliminated only with overall automation, when there is an actual joining of physical and mental labor and the most favorable conditions for the operation of the law of change of labor, including the formation of occupations of broad specialization, are created. Right now, however, it is necessary to more widely utilize the practice of holding two jobs and change of labor for a reduction in its monotony and increase in its rich content.

The effect of scientific and technical progress on working conditions is not always well defined. Along with improving them, the introduction of new equipment often leads to a sharp increase in the nervous and mental load on man and to the appearance of new materials and chemical and other substances, whose effect on the human body has not yet been studied sufficiently. At the same time, we must not fail to note that at times the practical utilization of these types of new equipment and materials is of a considerable economic benefit to production, which is also important.

In this connection the investigation and consideration in economic practice of the contradiction, objective in its nature, between the social and economic efficiency of scientific and technical progress are very urgent. The essence of this contradiction lies in the fact that in a number of cases the development and introduction of economically efficient new equipment is accompanied by a reduction in the rich content and deterioration in the conditions of labor. Therefore, the further improvement in the methodology of evaluation of the efficiency of scientific and technical progress and the consideration in the planning of the development and introduction of new equipment of all the factors forming its social and economic effect become especially necessary. "The Marxist-Leninist political and economic analysis of scientific and technical progress," notes L. Gatovskiy, "proceeds from the unity of science, technology, economy and social results of public production and is directed against any manifestations of technicism, as well as 'narrow economism,' overlooking the increasing role of social results of scientific and technical progress."[7] At the same time, as many economists note quite rightfully, the determining element of the efficiency of scientific and technical progress is economic. It forms the basis for the solution of the social problems facing society. For example, it would be a mistake to artificially stop a mass introduction at enterprises of semiautomatic equipment, which lowers the rich content of labor to a certain extent, because, ultimately, the growth of the economic potential attained as a result of the automation of production creates the possibility of shortening the work day, increasing the length of leaves and accelerating the development of the nonproduction sphere for an increase in the rich content of workers' leisure and a rational utilization of their free time. Along with this it becomes possible to spend more and more funds on improving working conditions in production itself. The CPSU and the Soviet Government pay constant attention to measures aimed at the creation of favorable and safe working conditions. The expenditures on the implementation of these measures from 1970 through 1979 alone almost doubled, reaching 2.3 billion rubles a year. All this serves as an important social factor in the elimination of the negative phenomena of scientific and technical progress.

Another group of contradictions in the development of science and technology can be singled out, that is, between the potentials and economic limits of the use of machines objectively inherent in socialism. For example, the attempt by some enterprises, instead of the presently highly effective means of mechanization of auxiliary operations, to produce and introduce more "prestigious," although expensive, automatic equipment is a manifestation of these types of contradictions. "Running ahead" in matters of technical development, just like a slow mastering of the already developed economic models of new equipment, has a negative effect on an increase in production efficiency.

Finally, we will single out another group of contradictions arising in the course of scientific and technical progress, that is, between the need for its maximum acceleration and on this basis a solution of the social and economic problems facing society, on the one hand, and the shortcomings in the economic mechanism hampering this process, on the other. It is obvious that the nature of such contradictions is due to the effect of the subjective factor and to the noncorrespondence of a number of existing methods of management to the objective needs for production intensification on the basis of new equipment. The contradiction between the modern needs for the mechanization of auxiliary operations and the existing allocation of funds for the mechanization of basic operations can be cited as

an example. The retention of the existing gap in the level of mechanization of both operations is its result. Apparently, it is necessary to envisage in the plans for the financing of organizational and technical measures and new equipment a specific allocation of funds for the mechanization of auxiliary operations and to increase the proportion of these funds in the total volume of capital investments for the mechanization and automation of production.

The contradiction between the tasks of acceleration of the development and introduction of new equipment, which express the objective needs for social development, and the lack of efficient methods of management, which would direct enterprise workers to the greatest extent toward a rise in the technical level and quality of output and the mechanization and automation of production with the utilization of the achievements of modern science, is another example. To a certain extent this is due to the fact that economic investigations and practical measures in the area of improvement in the methods of management often were implemented without a sufficiently complete consideration of the place and role of technical progress in the development of material production. The mastering of new output and rise in the technical level of enterprises often were represented as a process parallel to current activity and independent of it, not as the integral attribute and moving force of this development. As a result, for the most part, economic management of scientific and technical progress was constructed independently of the basic mechanism of management. For example, for a long time the planning and material stimulation of new equipment and current economic activity have been carried out in large measure separately from each other. Since the development and introduction of new equipment are supported with funds for material security, financing and stimulation to a lesser degree than current production, in many cases the interest of enterprises and organizations in scientific and technical progress is lowered.

There is one way to resolve these types of contradictions, that is, to systematically improve the methods of management of production development. This is our party's line, which determines the tasks of the development of modern economic science and practice.

FOOTNOTES

1. Brezhnev, L. I., "Rech' na Plenume Tsentral'nogo Komiteta KPSS 21 Oktyabrya 1980 Goda. Postanovleniye Plenuma TsK KPSS" /Speech at the Plenum of the CPSU Central Committee on 21 October 1980. Decree of the Plenum of the CPSU Central Committee/, Moscow, 1980, p 9.

2. PRAVDA, 1980, 2 December, p 2.

3. It is known that K. Marx, criticizing the methodology of Proudhon's petty bourgeois political economy, came out against the investigation of economic contradictions by singling out positive and negative aspects in them. The study of these contradictions should be based only on the recognition of coexistence of two aspects contradicting each other in them and their struggle as the essence of the dialectical movement (see: Marx, K., and Engels, F., "Soch.," /Works/, second edition, Vol 4, pp 134-136).

4. Lenin, V. I., "Poln. Sobr. Soch." /Complete Works/, Vol 42, p 211.

5. Man, K. Marx noted, represents an "extremely imperfect means for the production of a monotonous and continuous movement" (Marx, K., and Engels, F., "Soch.," second edition, Vol 23, p 387).

6. Brezhnev, L. I., "Rech' na Plenume Tsentral'nogo Komiteta KPSS 21 Oktyabrya 1980 Goda. Postanovleniye Plenuma TsK KPSS," p 9.

7. Gatovskiy, L., "Political and Economic Problems of Management of Scientific and Technical Progress," EKONOMICHESKIYE NAUKI, 1979, No 2, p 46.

Incentives for Progress

Moscow EKONOMICHESKIYE NAUKI in Russian No 1, Jan 81 pp 87-98

/Article by V. Pokrovskiy, doctor of economic sciences: "Economic Incentives for Acceleration of Scientific and Technical Progress"/

/Text/ At present society's economic development is determined to an ever greater extent by the progress of science and technology and by the achievements in the practical use of their results. Therefore, the 25th CPSU Congress noted the following: "... The final tasks of the social revolution--construction of communist society--can be accomplished only on the basis of an accelerated development of science and technology."[1] The draft of the CPSU Central Committee for the 26th party congress, among the basic tasks of the country's economic and social development for 1981-1985 and for the period until 1990, points to the need "to ensure the further acceleration of scientific and technical progress." This document also envisages a more active utilization of financial and credit levers for an acceleration of the development and introduction of highly efficient, new equipment.[2]

The following are of paramount importance for an increase in the efficiency of public production on the basis of all-around scientific and technical progress:

prompt inclusion of scientific and technical achievements in the plans for the development of all national economic units with a provision of an accelerated increase in the volumes of production of efficient, new equipment of a high level and quality to an optimum scale and with an allocation of all the necessary resources for these purposes, as well as the creation of the appropriate reserves and combination of the planning of scientific and technical progress with the planning of capital investments and production development;

significant reduction in the length of the investment cycle, which is aided by the planning and evaluation of and payment for the work of construction organizations only on the basis of finished projects and start-up complexes;

1. "Materialy XXV S'yezda KPSS" /Data of the 25th CPSU Congress/, Moscow, 1976, p 47.

2. See: PRAVDA, 1980, 2 December, pp 2 and 6.

significant increase in the consumer's role in the establishment of requirements for the technical level, quality and prices of all types of ordered products;

implementation of a long-term structural policy in the development of the national economy and in an increase in the efficiency of utilization of material and labor resources.

The basic ways of improving the economic mechanism were determined by the 25th party congress and by the subsequent plenums of the CPSU Central Committee. The decree of the CPSU Central Committee "On the Further Improvement in the Economic Mechanism and the Tasks of Party and State Bodies" and the decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality" adopted in 1979 were major steps in their realization. The further development of the economic mechanism is outlined in the draft of the "Basic Trends in the Economic and Social Development of the USSR for 1981-1985 and for the Period Until 1990."

New Elements in the Planning of Scientific and Technical Progress

In the planning of scientific and technical progress provision is made for a coordination of all the trends in the development of science and technology, increase in the scientific and technical potential in accordance with national resources and maintenance of the necessary proportionality between individual trends in and units of scientific and technical progress.

At present the solution of the far-reaching economic and social problems facing the country, as a rule, is beyond the scope of one five-year plan. In connection with this the role of the long-term planning of scientific and technical progress increases considerably. This is manifested primarily in the system of long-term, 5-year and annual plans clearly determined by the decree dated 12 July 1979 of the CPSU Central Committee and the USSR Council of Ministers. The drafting of an overall program for scientific and technical progress (for 20 years) is a new element in long-term planning. An overall program for scientific and technical progress and its social and economic consequences for the period until 1990 was first drafted in our country during the Eighth Five-Year Plan. Comrade L. I. Brezhnev, making a report at the 25th party congress, noted that the overall program is an organic component of current and long-term planning. It provides guidelines, without the knowledge of which it is impossible to manage the economy successfully. Work on the preparation of a new draft of such a long-term program was completed in 1979. It was performed on 27 trends by the commissions of the USSR Academy of Sciences and the USSR State Committee for Science and Technology (16 in scientific and technical problems and 11 in social and economic problems). A specially established scientific council directed this work.

About 2,000 scientists, specialists and practical workers from more than 500 scientific research, design and planning organizations and associations directly participated in the development of the overall program. As a result of the generalization by scientific and technical commissions of hundreds of forecasts and calculations made by individual scientific organizations and groups of scientists

and specialists, forecasts and technical and economic substantiations assumed an overall nature. This made it possible to formulate specific recommendations and to find an evaluation of the social and economic effect from their realization. In accordance with the basic trends in scientific and technical progress priorities in the development of individual scientific trends were determined in the overall program.

At the same time, work was done on the most important social and economic problems. Both the possible consequences of scientific and technical progress and the tendencies in and tasks of the country's social and economic development were taken into consideration. The drafting of the overall program has shown that the scientific and technical reserve existing in the country, when utilized rationally, makes it possible to greatly increase the rates of growth of national labor productivity on a national economic scale.

The long-term social and economic tasks determined by the CPSU and the overall program for scientific and technical progress examined above serve as a firm basis for the development by the USSR State Planning Committee together with USSR ministries and departments and the councils of ministers of the Union republics of a draft of the basic trends in the economic and social development of the USSR for 10 years (based on 5-year periods).

The further mastering of the program-object method is one of the important trends in the improvement in the planning of scientific and technical progress. In planning, it is pointed out in Comrade L. I. Brezhnev's speech at the October (1980) Plenum of the CPSU Central Committee, "it is necessary to widely utilize the method of object programs. Each such program should represent a substantiated plan, based on accurate calculations, of measures directed toward the end result and a complete solution of a certain problem."[1] Its use will contribute to the implementation of a unified scientific and technical policy, increase in the purposefulness of work of scientific research and planning and design organizations and shortening of the time of creation and mastering of scientific and technological achievements. The drafting of object programs oriented toward the solution of the most important scientific and technical problems, including an overall utilization of natural resources, is envisaged as the development of presently existing average-term programs (basically for a 5-year period). The draft plan for the 11th Five-Year Plan includes 40 overall scientific and technical object programs directed toward a scale realization of the most important scientific and technical achievements and ensuring a significant increase in production efficiency and the quality of output during the next 5-year period.

Overall scientific and technical object programs envisage a complete cycle of the development and mastering of new equipment and technology from scientific research to new output, as well as measures ensuring the introduction of new equipment and technology in the prescribed volumes, including the development of production

1. Brezhnev, L. I., "Rech' na Plenume Tsentral'nogo Komiteta KPSS 21 Oktyabrya 1980 Goda. Postanovleniye Plenuma TsK KPSS" /Speech at the Plenum of the CPSU Central Committee on 21 October 1980. Decree of the Plenum of the CPSU Central Committee/, Moscow, 1980, p 12.

capacities and the construction of new or reconstruction of existing production facilities. The drafting of overall scientific and technical object programs is envisaged for all key national economic sectors determining the country's technical and economic progress.

Furthermore, programs for the solution of the most important scientific and technical problems have been drafted. Creating fundamentally new types of equipment and technology, making their results ready for practical realization and advancing research and technical developments according to the most promising trends in science and technology for realization during the 12th Five-Year Plan are the ultimate aims of these programs. All the work on these programs is also directed toward final results and the acceleration of the development and mastering of new equipment in production. About 60 percent of the scientific and technical developments envisaged in the programs are to be made ready for industrial mastering during the 11th Five-Year Plan.

The role of intrasectorial programs is also increasing. For example, the ministries and councils of ministers of the Union republics should develop programs for the solution of sectorial scientific and technical problems with the appropriate measures for the development, mastering and introduction of high-quality, new machinery and equipment, advanced technology and materials, as well as for an improvement in the quality of output. Thereby, these programs become the most important part of the plan for a rise in the technical level of a sector.

The task of ensuring a rational utilization of everything that is available to the national economy, mainly on the basis of intensive growth factors and a wide introduction of scientific and technical achievements and advanced experience into production, is now placed in the center of planning activity. As is well known, significant changes have been introduced in the system of planning indicators. In particular, in the section for the planning of industrial production of the five-year plan for economic and social development an indicator of the growth of production of products in the superior-quality category should be established for industrial ministries, associations and enterprises. Changes are introduced in the system of physical measurers of output, which will more fully and accurately reflect its national economic efficiency, technical level and consumer properties. The "assignment for a reduction in the application of manual labor," which can be realized only through a wide introduction of the most advanced, new equipment, is introduced as an indicator of the plan section for labor and social development. Indicators of increase in capacities as a result of the retooling and reconstruction of existing enterprises, as well as the expenditures on these purposes, are especially singled out in the plan section for capital construction. This circumstance is especially important, because the reorganization of the structure of capital investments with due regard for the specificity of sectors in favor of the expenditures on the reconstruction and modernization of existing enterprises makes it possible to greatly accelerate the rates of renewal of the production apparatus.

The range of planning indicators approved just for scientific and technical progress is expanding. Basic assignments for the fulfillment of scientific and technical programs and f - the development, mastering and introduction of highly efficient, new industrial processes and types of products, including newly commissioned enterprises and projects, are approved in the five-year plans of ministries, associations and enterprises in the section for the introduction of new equipment. Basic indicators of the technical level of production and key types of products are also to be established.

The assignments of the five-year plan are specified in annual plans and sections for the introduction of new equipment and advanced experience. Assignments for the development, mastering and introduction of highly efficient, new industrial processes and types of products and for the fulfillment of scientific and technical programs will be approved. Assignments for the introduction of advanced experience in the area of technology, scientific labor organization, production and management, the indicator "economic effect from scientific and technical measures" and the establishment of standards of formation of the unified fund for the development of science and technology (for ministries) are new for annual plans. As an experiment the economic effect from measures for new equipment has already been planned in the electrical engineering industry and in agricultural, power and heavy machine building.

In connection with the introduction of the planning of economic effect from the implementation of scientific and technical measures at all levels there is a greater interest in the selection for inclusion in the plan of projects for new equipment whose combination will ensure the attainment of the size of economic effect established in it. This also directs sectors, associations, enterprises and organizations toward the performance of schedule orders for projects ensuring the highest end results.

The "assignment for an average reduction in the norms of expenditure of the most important types of material resources" has now been introduced as an indicator of the plan section for material and technical supply.

These kinds of changes in the planning of the activity of all national economic units are directed toward an organic inclusion of scientific and technical progress in production plans and toward the maximum possible expansion of the utilization of scientific and technical achievements in practice. The newly introduced planning indicators for sectors, associations and enterprises clearly indicate that the use of new equipment is becoming an integral feature of modern production.

Measures for Intensification of Economic Incentives for Acceleration of Scientific and Technical Progress

Incentives for the attainment of the aims set by society occupy a special place in the system of management of the creation, mastering and introduction of the results of research and development into the national economy. Incentives understood as a system of regulating measures of an economic nature include a number of factors. Financing is one of the most effective levers of increasing the efficiency of labor of workers ensuring an accelerated introduction of scientific and technological achievements into the national economy. The intensified centralization of financial resources for the implementation of a unified technical policy in sectors, the development of object methods of planning and management directed toward the attainment of end results and the noncoincidence in the place, time and volume of realized economic effect from previously mastered new equipment with the expenditures on the implementation of regular measures for scientific and technical progress required the creation in sectors of unified sources of financing the expenditures on the development of science and technology. In particular, this made it possible to solve many problems as a result of specification of the sources of financing and methods of formation of funds assigned for research,

development and the introduction of new equipment. In the sectors where the unified fund for the development of science and technology has already been formed it has replaced the previously scattered sources of financing, that is, from the budget, deductions from the production costs of industrial products for scientific research and the fund for the mastering of new equipment. The unified fund for the development of science and technology is a fundamentally new form of financing based on the combination of centralized and cost accounting principles.

It is created in industrial ministries and departments for financing scientific research, experimental design and engineering projects and for compensating for the expenditures connected with the development and mastering of new types of products and industrial processes and with the introduction of scientific labor organization, as well as for financing additional expenditures on improving product quality and the increased expenditures during the first years of production of new articles. Industrial ministries (departments) can place part of the unified fund at the disposal of all-Union (republic) and large-scale production and scientific-production associations for financing the measures for the development of science and technology envisaged by the plan. The unified fund for the development of science and technology is formed from the deductions from the planned profit of scientific-production and production associations (enterprises) and organizations according to the standard established for a ministry (department) in the state five-year plan for the economic and social development of the USSR (with an annual distribution) in percent of the net (standard) output and in individual sectors, of the commodity output. Furthermore, part of the additional profit (amounts of premiums applied to the wholesale price) from the sale of highly efficient, new products and products with the State Badge of Quality is assigned to the unified fund for the development of science and technology. The amount of this part is equal to one-half of the balance of profit after deduction into the economic incentive funds of associations (enterprises) and scientific research, planning design and engineering organizations. The assignment of resources from the amount of incentive premius applied to wholesale prices to the unified fund for the development of science and technology is not envisaged in financial plans.

The creation of the indicated unified fund is a big forward step in the construction of a system of financing scientific and technical progress on the basis of the assignments of the five-year plan in accordance with cost accounting principles of management. It should be noted that the part of the unified fund for the development of science and technology underutilized in the current year is not withdrawn and can be used in the following year. This increases the operational-economic independence of ministries in the expenditure of resources on projects for new equipment.

The introduction of a unified cost accounting source of financing research, development and the mastering of new equipment not only increases the operational economic independence of ministries in the use of resources for projects connected with the creation and mastering of new equipment, but also ensures a unity of the sources of financing for the "research-mastering" cycle and the possibility of an operational redistribution of resources over the stages of this cycle and increases the responsibility of ministries and scientific organizations for an efficient utilization of their resources. The use of the unified fund also increases the concentration of financial resources. In particular, in the chemical

industry in 4 years of financing projects from the unified fund for the development of science and technology the share of those whose cost exceeded 1 million rubles increased from 41 to 60 percent.

The production development fund is an important source of capital for retooling enterprises (associations) and renewing their production apparatus. It is formed from deductions from profit according to special standards, from the resources of depreciation deductions designed for a full replacement (renovation) of fixed capital (at the rate of 10 to 50 percent) and from proceeds from the sale of disused and superfluous property. There are also other unplanned sources of replenishment of this fund (part of the resources from the transfer of scientific and technical achievements, part of the premiums for efficiency and quality and so forth). The resources of the production development fund are earmarked for financing expenditures on the introduction of new equipment, mechanization and automation of production, modernization of equipment, replacement of fixed capital, strengthening the material and technical base of planning and research organizations, improving production and labor organization and some other needs.

In the accomplishment of the tasks connected with the further acceleration of scientific and technical progress, as already noted, the draft of the CPSU Central Committee for the 26th party congress also assigns an important place to credit incentive measures. In accordance with the decree dated 12 July 1979 of the CPSU Central Committee and the USSR Council of Ministers the credits of the USSR All-Union Bank for the Financing of Capital Investments for the implementation of highly efficient measures will be developed even more. In particular, ministries and departments will be granted credits for projects financed with the resources of the unified fund for the development of science and technology when the receipts of money in this fund and the amounts of expenditures incurred from it do not coincide in time. Scientific-production and production associations (enterprises) will receive credit for the implementation of highly efficient measures provided they are fulfilled during shorter periods than envisaged by the plan.

The credits of the USSR All-Union Bank for the Financing of Capital Investments are also to play an important role in the implementation of highly efficient measures for the development of science and technology not envisaged by the plan. The credit and interest on it will be paid off within 2 years from the resources of the unified fund for the development of science and technology. This credit is granted to associations and enterprises against the guarantee of ministries, departments or all-Union (republic) industrial associations.

The USSR All-Union Bank for the Financing of Capital Investments can grant production associations (enterprises) credit for the implementation in excess of the limit of state capital investments of highly efficient measures for new output and improvement in the quality of articles provided the expenditures are recovered and the loan is paid off within 2 years from the additional profit. Thereby the effectiveness of credit rises and its role in an increase in the output of high-quality products and in the transfer of associations and enterprises to the manufacture of new articles intensifies.

Economic and Social Efficiency of New Equipment

As is well known, the efficiency of new equipment is now determined in the process of technical and economic substantiation at the stage of selection of a topic or program for its inclusion in the plan. In most cases, however, this stage is considered by developers as the "substantiation" of the inclusion of a topic in the plan, as a result of which the procedure of evaluation of the efficiency of new equipment is simplified. Such an approach often leads to the fact that new equipment, being much more expensive than its analogs, is only 20 to 30 percent more productive.

At the same time, under present conditions it is important to evaluate not only the economic effect (it expresses the saving of live and embodied labor in public production obtained with the use of the results of research or development as compared with the expenditures on their attainment), but the social effect as well (it is manifested in the improvement in working conditions, in the development of public health, culture, science and education, in the enhancement of the country's prestige in the world arena, in the improvement in ecological conditions and so forth).

The national economic and cost accounting economic effects of new equipment are distinguished. The national economic effect is the total annual economic effect in the sphere of production of new equipment and the total economic effect from the utilization of new equipment by consumers during its entire length of service until it becomes obsolete. The cost accounting, individual effect is part of the national economic effect from the production and use of new equipment at the level of a cost accounting unit.

The calculation of the annual economic effect obtained as a result of the performance of work on the development, mastering and introduction of new equipment should be made according to the sectorial methodological directives worked out on the basis of the Methods (Basic Principles) of Determination of the Economic Efficiency of Utilization of New Equipment, Inventions and Rationalization Proposals in the National Economy (1977).

It is important to calculate the economic effect obtained from the output of new types of products in accordance with the existing methodological principles with due regard for the saving obtained by the consumer. For new subjects of labor the latter is formed as a result of the reduction in the expenditure of material resources and expenditures of live labor. New means of labor provide a saving owing to the increase in their productivity, reduction in the expenditure of raw materials, supplies and energy and decrease in the capital investments necessary for putting these means into operation.

The establishment of the economic effect from the implementation of scientific and technical measures in the structure of the five-year plans of ministries, associations and enterprises is a fundamentally new step in the solution of such an urgent problem of improvement in the economic mechanism as an organic inclusion of the plans for the development of science and technology in the general system of planning. The use of this indicator should provide for the formation of all

plan proportions and the development of a system of progressive technical and economic norms and standards on the firm basis of an objective evaluation of the economic and social consequences of scientific and technical progress.

The introduction of new equipment into industry ensures a significant economic effect and releases hundreds of thousands of workers annually. The period of recovery of the expenditures on the introduction of measures for new equipment is approximately 2.5 years. During the Ninth Five-Year Plan the saving from the introduction of measures for new equipment totaled 12.3 billion rubles and during the 10th Five-Year Plan it increased almost 1.5-fold. The standard disengagement of workers as a result of the rise in the technical level of production increased by more than 30 percent. The economic effect should be reflected in the cost accounting indicators of the activity of ministries, associations and enterprises. This will not only increase the substantiation of the planning of the new indicator, but will also make it possible to tie it with other cost accounting work results. The introduction of the economic effect from the implementation of scientific and technical measures into the system of planned indicators requires an efficient organization of the calculation of the actual, capital and current, expenditures on the introduction of new industrial processes, means of mechanization and automation and methods of production and labor organization. The amounts of profit obtained from the reduction in production costs as a result of the utilization of scientific and technical achievements should be reflected in accounting.

In our opinion, the planning of the economic results of introduction of scientific and technical measures will greatly increase the interest of management bodies, which make decisions on the development of new equipment and approval of the appropriate schedule order, in the selection of new equipment according to the criterion of reduction in integral expenditures per unit of its operation (productivity).

The Cost Accounting System of Organization of Work on the Development, Mastering and Introduction of New Equipment

An acceleration of the development and introduction of new equipment requires new forms of organization of this process in all industrial sectors of the national economy. The draft of the CPSU Central Committee for the 26th party congress sets the task of "increasing the efficiency of the cost accounting system of organization of work in scientific research, planning and design organizations, associations and enterprises on the development, mastering and introduction of new equipment on the basis of schedule orders."[1]

The gradual transition begun in 1969 of industrial ministries to a system of planning and financing of and economic incentives for work on new equipment, when the economic effect from their realization is the basic and main criterion of selection and introduction of advanced types of articles and industrial processes into production, contributed to an intensification of cost accounting relations in the sphere of scientific and technological development. The system of schedule orders has become the main form of intraministerial planning and financing of scientific and technical developments. It ensures the continuity and overall nature of the

1. PRAVDA, 1980, 2 December, p 6.

planning of stages of the development, mastering and introduction of new equipment; mutually coordinated planning of all the material and technical resources and capital investments necessary for the solution of a problem; participation of enterprises in working out problems. Accelerated rates of increase in the efficiency of introduction of scientific and technical measures and production of high-quality products are ensured in sectors operating with such a system for a considerable time. For example, in the electrical engineering industry the annual percent of increase in the national economic effect comprises more than 20 percent. The proportion of output with the State Badge of Quality in the total volume of commodity output exceeded the all-Union indicator in the electrical engineering industry approximately threefold and in heavy machine building, more than twofold. Schedule orders, according to which the bulk of new equipment will be developed and introduced, should become the most widespread form of realization of the principles of program-object planning and management.

In accordance with the decision of directive bodies the transfer of scientific research, design and technological organizations, pilot (experimental) enterprises and scientific-production and production associations (enterprises) of industrial ministries to the cost accounting system of organization of work on the development, mastering and introduction of new equipment on the basis of schedule orders (contracts) was completed in 1980.

It was established that the end results of projects (including the national economic effect), their executors and periods of execution at all stages--from scientific research to the introduction of results into production--as well as the necessary material resources and sizes and sources of financing and material incentives, should be determined in schedule orders. The schedule order should envisage all the necessary assignments (projects and stages) of the overall topic and their end results; technical and economic parameters and indicators of the developed models of new equipment (including the ceiling price); dates of the beginning and end of the overall topic (assignments, projects and stages); the funds and resources (including capital investments) by years and the amounts of bonuses for the performance of assignments (projects and stages) needed for the performance of research, development and the mastering and introduction of work results. To facilitate the preparation of schedule orders for the development of articles, an industrial process and a material and for scientific research, experimental design and engineering projects standard stages of execution of appropriate projects should be determined for ministries and departments.

Schedule orders envisage giving executors assignments for the attainment of economic results of the introduction of new equipment, which will ensure the following advantages:

organic coordination of the management of scientific and technical progress with the general system of control of the entire process of management;

intensification of the object trend and standard nature of the plan for new equipment;

inclusion in the sphere of planning of incentives contributing to a more rapid and efficient mastering of new equipment and to a full utilization of its planned capacities in operation;

provision of conditions for an accelerated transition from the creation of a scientific and technical reserve to a mass use of scientific and technological achievements in the national economy.

As we see it, the determination in the schedule order of the amounts and sources of material incentives is of great importance not only because every worker realizing the assignments of the schedule order knows in advance the amounts of incentives, but also because this makes it possible to efficiently coordinate the level of the latter with the attained end results.

The national economic effect of a widespread use of the cost accounting system of organization of work on the development, mastering and introduction of new equipment on the basis of schedule orders is connected with an accelerated cycle of the development of new equipment, with an increase in the efficiency of scientific research and experimental design projects due to the very rapid introduction and with a reduction in losses from the immobilization of funds during the investment period of development of new equipment.

In the broad sense incentives also include wages and material and moral rewards.

There was a planned increase in wages in the sphere of scientific and technical development during the 10th Five-Year Plan. The salaries of the most widespread categories of workers directly developing and introducing new equipment, that is, scientific workers not having an academic degree, designers, planners and other specialists, on the average, were increased by 20 percent, rising to the level of salaries introduced during the Ninth Five-Year Plan for engineers and senior engineers in production. The salaries of specialists ensuring high-quality and effective research and development are increased to a greater extent than those of other workers. For this purpose the posts of key specialists, whose number can be established within 10 percent of the total number of specialists in all categories, are introduced in scientific research institutions and planning organizations. At the same time, three skill categories are used both for designers and process engineers with due regard for the complexity and efficiency of labor. It remains possible to pay official salary increments at the rate of 30 percent to highly skilled workers attaining the highest quality indicators. However, the total amount of such increments should not exceed 2 percent of the wage fund of these workers.

Under conditions of the transfer of scientific research, experimental design and engineering organizations to cost accounting incentives for the expansion of the front of research and development will be provided through basic wages, because the wage fund of workers will continue to be determined not in an absolute amount, but in percent of the volume of expenditures on the indicated projects. However, the volumes of expenditures on scientific research and experimental design projects are now established in five-year plans in percent of the net (standard) output and in some sectors are correlated with commodity output.

Wages and the provision of incentives for workers in the sphere of science are based on an evaluation of the activity of scientific research and planning and design organizations and their subdivisions. The efficiency of activity of scientific research institutions and design bureaus implies a feature reflecting the

realization of the basic function of the examined system, that is, its usefulness for society. In accordance with this the efficiency of activity of scientific research institutes and design bureaus of sectorial specialization can be evaluated by the increase in the social, scientific-technical and economic results of the work of a collective during the examined period expressed in the rise in the scientific and technical level of research, development and new equipment, in the expansion of the effect of the results of activity of scientific research institutes and design bureaus on scientific and technical progress in the appropriate sector (subsector) of the national economy, in the increase in the scientific and technical potential in the appropriate sector or area of science and in the social and ecological consequences of this activity with minimal expenditures of resources.

The efficiency of activity of scientific research institutes and design bureaus is characterized by several groups of indicators. First of all, this is the scientific and technical level of research (development), that is, the combination of the basic criteria determining a given research (development), which depend on the degree of development of the scientific potential and objectively existing possibilities of obtaining the highest scientific and technical achievements. The scientific and technical level of research (development) is determined through a comparison of the basic characteristics (novelty, theoretical level, prospects for realization and so forth) of the research (development) result with the results of similar research (development) attained in the world (country or sector) or forecast. Ultimately, the results of activity of scientific organizations are expressed in the economic effect from the introduction of completed developments and realization of inventions. Therefore, the indicators of economic efficiency, that is, the actual economic efficiency of the expenditures on research and development, the economic effect per scientific and engineering-technical worker and so forth, represent one of the most important groups of evaluation indicators of the work of scientific research institutes and design bureaus oriented toward the development, mastering and introduction of new equipment. A group of indicators characterizing the introduction of research and development, that is, the scale of introduction and shortening of the length of the "research-development-introduction" cycle, has also been singled out. The sharp increase in the science intensiveness (ratio of the expenditures on research and development in a sector to the volume of the sector's sold or commodity output) of new products ever more urgently requires a significant volume of their output for an increase in the efficiency of public production. Therefore, the orientation of all scientific research institutes and design bureaus, as well as of the bodies managing scientific and technical progress, toward an increase in the scale of realization of research and development results is of paramount importance. The proportion of products in the superior-quality category produced on the basis of the developments of this organization, as well as the proportion of products produced by a sector (subsector) according to the specialization of this organization on the basis of its developments, and the reduction in the production costs of industrial products and disengagement of workers attained owing to the latter play an important role in this group of indicators.

The individual efficiency of labor of scientific workers should be the basis for material incentives. Therefore, the formation of the material incentive fund, the fund for social and cultural measures and housing construction and the organization development fund in scientific research, planning-design and technological organizations by analogy with production associations (enterprises) will be

of great importance in the acceleration of scientific and technical progress. The decree dated 12 July 1979 of the CPSU Central Committee and the USSR Council of Ministers also envisages awarding bonuses to workers of scientific-production and production associations (enterprises), scientific research institutes and design bureaus for the development of new equipment depending on the total economic effect actually obtained in the national economy from the utilization of scientific and technical achievements. This incentive system ensures a trend toward the end result--rapid mastering of highly efficient, high-quality, new equipment in production. The following, not the resources of the wage fund, will now be the basic sources of formation of incentive funds for all scientific organizations: first, deductions from the profit formed at a sector's enterprises and associations as a result of the actual reduction in production costs (performance of work) due to the utilization of the new scientific and technical solutions proposed by organizations and the introduction of measures for scientific labor organization; second, deductions from the additional profit actually obtained by a sector's enterprises and associations from the incentive premiums applied to wholesale prices for highly efficient, new products corresponding in their parameters to the best domestic and foreign models and for products with the State Badge of Quality. The first type of deduction will be made according to a unified standard established in a sector within 3 years from the beginning of introduction of a new scientific and technical solution and measures for scientific labor organization. At the same time, the amount of deductions in the first year is determined on the basis of the size of the obtained annual economic effect and during subsequent years, on the basis of its increase as compared with the previous year. During the introduction of new scientific and technical solutions for individual production ministries (departments) are granted the right to make deductions within 2 years on the basis of the annual economic effect calculated according to the actual volume of output in the first and second year of utilization of a given solution in production. The second type of deduction is made from additional profit (amount of bonuses applied to the wholesale price), including after a repeated certification of products and the award of the State Badge of Quality to them for the second time if organizations perform additional work to ensure a high quality of articles produced for a long time.

Resources included in the estimated cost of scientific research, design and engineering projects, whose total volume should not exceed one-fourth of the volume planned for a ministry (department), are used as additional sources of formation of the incentive funds of organizations.

For specific scientific and technical developments (except for overall developments whose results are both new technology and new output) deductions into the incentive funds of organizations are made only from one of the above-mentioned sources. Thus, bonuses for workers developing new equipment are awarded from deductions received in the material incentive fund primarily depending on the actual economic effect obtained from the introduction of scientific and technical developments and new equipment into production.

Accelerated rates of increase in the efficiency of scientific and technical measures and introduction of high-quality products into production are ensured in sectors operating with such a system for a considerable time. It is very important that in the electrical engineering industry in 10 years of the use of this

system the rates of growth of the total annual economic effect from the development, mastering and introduction of new equipment exceeded the rates of growth of deductions into incentive funds almost fourfold. The average annual rates of increase in output in the superior-quality category were also four times as high as the rates of increase in the total volume of output in the sector. In heavy and transport machine building the total annual economic effect of new equipment almost tripled and the proportion of the output of products in the superior-quality category increased approximately 3.5-fold.

A gradual transfer of sectorial scientific organizations to a system of payment for completely finished projects accepted by the client will contribute to an intensified orientation of organizations developing new equipment toward an accelerated attainment of high end results. The weak stimulating effect of the existing system of financing scientific research on the periods of development of new equipment is one of its shortcomings. Scientific organizations now receive payment in stages, or in the form of advance expenditures. Often projects are divided into stages so that an institute does not feel a shortage of funds, regularly receiving them from various sources. At the same time, the estimated cost of start-up projects usually is overstated, which lowers the interest in the completion of the entire project if the excessive sums received must be returned. Economic conditions are created for prolonging research periods and for the immobilization of funds in uncompleted projects. As a rule, the volumes of uncompleted production of scientific organizations grow more rapidly than the volumes of execution of projects and their remainders at the end of the year exceed the annual volumes of projects. Such a situation is observed both in independent scientific organizations and in institutes forming part of associations.

In accordance with the already approved "Directives for the Transfer of Sectorial Scientific Research, Planning-Design, Engineering and Planning Research Organizations to a System of Payment for a Completely Finished Project Accepted by the Client" the planning of the volume of completed and paid for projects accepted by the client (instead of the volume of executed projects) should be introduced in scientific institutions. The indicator of the volume of completed and paid for projects accepted by the client is established for organizations in the five-year plan with an annual distribution of assignments and in the annual plan, with a quarterly breakdown. The fulfillment of the five-year plan for the volume of completed and paid for projects accepted by the client is evaluated in a running total from the beginning of the five-year plan, and of the annual plan, in a running total from the beginning of the year. The fulfillment of the plan of an organization for the volume of completed and paid for projects accepted by the client is evaluated on the basis of the amount of estimated cost of projects adopted in the plan.

The expenditures of organizations before the planned period for the delivery of projects are covered by bank credit within the client's resources released in connection with the transfer to calculations without intermediary payments. If an organization does not follow the planned schedule for the delivery of projects, the issue of credit continues with a collection of higher interest on loan use.

The experience of industrial ministries in the introduction of systems for an accelerated development and mastering of new equipment indicates that only a set of planning, organizational and incentive measures makes it possible to obtain high national economic results.

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March 20, 1981